Archive ENERGY STAR Certified Homes Policy Record

How to Use This Document

EPA regularly receives partner questions and comments regarding various aspects of the program documents. This document is a record of the issues that have been received since the release of the last revision to the program documents. These issues have been resolved, sometimes resulting in modifications that will be incorporated into the next revision of the program documents. The primary purpose of this document is to allow all partners to have equal access to the latest policy issues and resolutions.

For Version 2.5, Version 3, and Version 3.1 EPA has formally incorporated policy modifications into the program documents. Those edits are enforced for homes permitted after a specified transition period, typically 60 days from the release of the revised program requirements. Partners may, at their discretion, use the determinations immediately at the time of their release, in advance of the formal implementation dates. If they do so, they should be sure to document the permit dates of the affected homes and to include a copy of the policy record in the files retained by the Home Energy Rater. Should the need arise, this will allow partners to demonstrate that they acted with the best information available.

Definitions

Each issue listed here is classified as a Change, Clarification, Refinement, or Comment. 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, IECC 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.

- *Comment* – A comment provided by EPA in response to a question, which results in no change to the program documents. This may occur, for example, if the question can be answered by referring to already established policy. Aside from the partner asking the question, such comments will typically have no impact on the way that partners comply with the program.

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ID	Log Date	Program Document	Classification	Topic
00298	**06/01/2013**	**All National & Regional Program Documents**	**Comment**	**All pages – Explanation of the dates listed in the footer of the program documents**
				Issue: Partners have asked for an explanation of the dates in the footer of the program documents.
				Resolution: Two dates are listed in the footer of the ENERGY STAR Certified Homes Program documents: the "Revised" date and the "Effective" date. The "Revised" date refers to when that particular document was last updated and released. It is purely informational. The "Effective" date indicates when this revised document must be used to certify homes, which helps to ensure that partners are using the latest information available. That is to say, homes permitted after this "Effective" date must use this revised document, as opposed to the prior revision of the document. Note that EPA recommends, but does not require, using the latest revision prior to this date.
00282	**12/31/2012**	**All National & Regional Program Documents**	**Comment**	**ENERGY STAR certification of homes undergoing a 'gut rehabilitation'**
				Issue: Partners have asked if existing homes are permitted to be ENERGY STAR certified and if so, whether there are any exemptions or alternatives to the guidelines that apply to these homes.
				Resolution: Historically, EPA has allowed existing homes to earn the ENERGY STAR when all program requirements are met. EPA does recognize that some of the current program requirements present unique challenges for existing homes, even those undergoing a gut rehabilitation. Therefore, EPA has assessed whether there are alternative compliance options that would meet the intent of the current requirements and allow these homes to be ENERGY STAR certified. Note that the goal was not to develop a separate label, but rather to allow these homes to achieve the same intent of the ENERGY STAR Certified Home requirements through alternative options. While many requirements were analyzed, the Policy Record only contains the requirements for which an alternative compliance path was created or a clarification needed. While these alternative paths meet the original intent of the Items, they are not necessarily a best practice for new construction. Thus, these alternative options are only available to existing homes. Through this process, EPA has identified key components that may need to be in the scope of an existing home project to meet the ENERGY STAR requirements. These include the following: 1) Remove exterior cladding and the outer surface of roof to install and/or verify the components on the Water Management System Builder Checklist and Thermal Enclosure System Rater Checklist

				2) Replace or expose most systems, equipment, or components (e.g. HVAC and ducts, windows, insulation) 3) Grade the site and/or provide drains/swales 4) Implement below-grade moisture management strategies EPA acknowledges that additional alternatives, increased flexibility, and alternative assessment protocols would expand the number of homes able to earn the ENERGY STAR. EPA is committed to including additional alternatives as they become available so that more homes may earn the ENERGY STAR label without sacrificing performance.
00551	**08/12/2015**	**All National & Regional Program Documents**	**Comment**	**How to use Rev. 07 design documentation with the Rev. 08 HVAC Commissioning Checklist, Rater Checklists, and Water Management System Builder Requirements during the transition to Rev. 08**
				Issue: Homes permitted starting 07/01/2016 are required to use Revision 08 to be certified. Partners have asked if, until this date, they are allowed to continue using Rev. 07 HVAC design documentation coupled with the Rev. 08 HVAC Commissioning Checklist, Rater Checklists, and Water Management System Builder Requirements to certify a home.

				Resolution: For homes permitted before 07/01/2016, partners are allowed to continue using Rev. 07 HVAC design documentation coupled with the Rev. 08 HVAC Commissioning Checklist, Rater Checklists, and Water Management System Builder Requirements to certify a home. Specific guidance on how this is to be done follows, organized by the Rater's responsibilities.
				<u>Rater Design Review Checklist</u>
				Only Section 4 of this Checklist requires HVAC design documentation in order to be completed, and shall be completed as follows (Rev. 07 HVAC System QI Contractor Checklist Item # indicated in parenthesis):
				• <u>Item 4.1</u>: Collect the Rev. 07 HVAC System QI Contractor Checklist from the HVAC designer and verify that no Items in Sections 1 through 5 have been left blank. Also:
				  ○ Collect the documentation with ventilation system type, location, design rate, and frequency and duration of each ventilation cycle (1.3).
				  ○ Full load calculations are permitted, but not required, to be collected.
				  ○ The AHRI certificate is permitted, but not required, to be collected.
				• <u>Item 4.2</u>: Review the Rev. 07 HVAC System QI Contractor Checklist and verify the following:
				  ○ <u>Item 4.2.1</u>: The cooling season and heating season outdoor design temperatures used in loads (2.4) are either: a) within the limits defined at energystar.gov/hvacdesigntemps for the State and County where the home will be built, per Rev. 08 or b) a justification has been collected from the designer for the temperatures used, per Rev. 07.

				○ Item 4.2.2: The number of occupants used in loads (2.6) is within ± 2 of the home to be certified. ○ Item 4.2.3: The conditioned floor area used in loads (2.7) is either: a) between zero and 300 sq. ft. larger than the home to be certified, per Rev. 08 or b) ±10% of the home to be certified, per Rev. 07. ○ Item 4.2.4: The window area used in loads (2.8) is either: a) between zero and 60 sq. ft. larger than the home to be certified, per Rev. 08 or b) ±10% of the home to be certified, per Rev. 07. ○ Item 4.2.5: The predominant window SHGC used in loads (2.9) is within 0.1 of the predominant value in the home to be certified. ○ Item 4.2.6: The orientation used in loads (2.5) matches the orientation of the home to be certified. By definition, if this requirement is met then the sensible, latent, & total heat gain will be documented for the orientation of the home to be certified. ○ Item 4.2.7: No verification is required for this Item because the loads have only been provided for one orientation. Therefore, by definition, the variation in loads across orientations will be ≤ 6 kBtuh. ○ Item 4.2.8: The cooling capacity (3.10) is within 90-130% of the design total heat gain (2.14) or a statement has been collected from the designer that the next nominal size has been selected. Rater Field Checklist Only certain Items in Sections 5, 6, and 7 require HVAC design documentation in order to be completed, and shall be completed as follows (Rev. 07 HVAC System QI Contractor Checklist Item # indicated in parenthesis): • Item 5.1: Verify that the HVAC manufacturer & model number on installed equipment matches either the HVAC System QI Contractor Checklist (3.1, 3.2 & 5.1) or written approval has been received from the designer. • Item 6.2: Verify that bedrooms are pressure-balanced to achieve a Rater-measured pressure differential ≤ 3 Pa. If using the alternative in Footnote 34, room-by-room design airflows must be collected for the bedrooms to demonstrate that the 150 CFM threshold required by the alternative has been met. • Item 7.1: Verify that the Rater-measured ventilation rate is within either ± 15 CFM or ±15% of the design value in the supplemental ventilation design documentation that was collected. • Item 7.5: If system utilizes the HVAC fan, then verify that the specified fan type is ECM / ICM (3.7), or the controls will reduce the standalone ventilation run-time by accounting for hours when the HVAC system is heating or cooling.

				Note that once designers transition to the Rev. 08 HVAC Design Report, then all the requirements of Rev. 08 apply, even during this transition year. For example, for a designer using the Rev. 08 HVAC Design Report, the options to: provide the Rater with a justification for exceeding the outdoor temperature limits; to be within ±10% of the floor area of the certified home, to be within ±10% of the window area of the certified home; and to use the next nominal equipment size no longer apply.
00552	**08/12/2015**	**All National & Regional Program Documents**	**Comment**	**How to use Rev. 07 program documents during the transition to Rev. 08**
				Issue: Homes permitted starting 07/01/2016 are required to use Revision 08 to be certified. Homes certified prior to this date are permitted to be certified under either Rev. 07 or Rev. 08. During this transition period, partners have asked whether any of the changes in Rev. 08 can be applied to homes being certified under Rev. 07. This might be desired if, for example, a home began certification under Rev. 07 and all that remains to complete the certification is an item that is no longer required under Rev. 08.
				Resolution: For homes permitted before 07/01/2016, partners are allowed to continue to certify homes using Rev. 07. While partners may continue to meet all requirements of Rev. 07, certain Items that are no longer required in Rev. 08 are permitted to be omitted and the home still certified under Rev. 07. Specific guidance on how this is to be done follows, organized by each Rev. 07 checklist. Thermal Enclosure System Rater Checklist All Items on this Checklist must be completed, as originally required under Rev. 07, except for those Items noted below: • Item 5.1.6: Visual inspection of light tubes is permitted, but not required. • Item 5.2.5: Visual inspection of marriage joints between modular home modules is permitted, but not required. • Item 5.2.6: Visual inspection of seams in Structural Insulated Panels (SIPs) is permitted, but not required. HVAC System QI Contractor Checklist All Items on this Checklist must be completed, as originally required under Rev. 07, except for those Sections and Items noted below: • Item 2.18: Full load calculations are permitted, but not required, to be attached. • Item 3.5: Metering device type is permitted, but not required, to be indicated. • Item 3.6: Refrigerant type is permitted, but not required, to be indicated. • Item 3.13: An AHRI certificate is permitted, but not required, to be attached.

				• Section 8: Electrical measurements are permitted, but not required, to be taken and recorded. • Section 10: Documentation must be prepared and attached indicating the room name and design airflow for each supply and return register. However, final individual room airflows are recommended, but not required, to be measured and documented through one of the options in Item 10.1.1 and 10.1.2. • Section 11: System controls are permitted, but not required, to be verified. HVAC System QI Rater Checklist All Items on this Checklist must be completed, as originally required under Rev. 07, except for those Items noted below: • Item 1.1: Sections 1 through 5 of the HVAC System QI Contractor Checklist are required to be completed in their entirety and collected for records, along with documentation on the ventilation system. In contrast, Sections 6 through 11 of the HVAC System QI Contractor Checklist, as well as the full load calculations and AHRI certificate, are permitted, but not required, to be collected for records. Section 12 of the HVAC System QI Contractor Checklist, which requires verification of the presence of a drain pan, shifts from the HVAC Contractor in Rev. 07 to the builder in Rev. 08. To document which of these parties has taken responsibility for this requirement during the transition, either collect Section 12 of the HVAC System QI Contractor Checklist for each system (as was required in Rev. 07) or collect documentation once per builder indicating the date that they transitioned to the Rev. 08 Water Management System Builder Requirements (and, therefore, took responsibility for the drain pan inspection). • Item 1.2.3: The number of occupants used in loads is permitted to be within ± 2 of the home to be certified. • Item 1.2.7: Verification that latent capacity exceeds design latent heat gain is permitted, but not required. • Item 1.2.8: Verification that sensible capacity exceeds design sensible heat gain is permitted, but not required. • Items 1.2.11 & 1.2.12: Refrigerant math is permitted, but not required, to be verified. • Item 1.3: External static pressure is required to be measured by Rater at contractor-provided test locations and either: a) verified to be ≤110% of contractor-reported values, per Rev. 07 or b) documented by the Rater, per Rev. 08. • Item 1.4: Contractor-prepared balancing report is permitted, but not required, to be collected. In addition, final individual room airflows are permitted, but not required, to be measured and documented through one of the options in Item 1.4.1 and 1.4.2.

				• Item 2.4: Verification that flexible ducts are supported at manufacturer-recommended distances is permitted, but not required. • Item 2.6: Verification of this Item, which relates to HVAC components that pass through exterior walls, is permitted, but not required. • Item 2.7: Verification that the quantity & location of supply and return duct terminals match the contractor balancing report is permitted, but not required. • Item 2.8: Verification that bedrooms are pressure-balanced is required. If the alternative 5 Pa limit is used, which is allowed in Rev. 08 for rooms with a design airflow ≥ 150 CFM, then room-by-room design airflows must be collected for the bedrooms to demonstrate that the threshold has been met. • Item 4.1: Total Rater-measured duct leakage is required to be verified, though the alternative limits included in Rev. 08 are permitted to be used. • Item 4.2: Rater-measured duct leakage to outside is required to be verified, though the alternative limit of 40 CFM included in Rev. 08 is permitted to be used. • Item 5.1: Rater-measured ventilation rate is required to be verified, though the alternative tolerance of either ± 15 CFM or ±15% of the design value, included in Rev. 08, is permitted to be used. • Items 6.1 - 6.3: The basic commissioning test to ensure that the heat, cool, and fan mode of the HVAC system is operational is permitted, but not required. • Item 7.2: Ventilation air inlets that are only visible via rooftop access are exempted from visual inspection. In addition, ventilation air inlets are permitted to be ≥ 2 ft. above grade or roof deck in all climate zones. • Items 8.3 & 8.4: Visual inspection of common exhaust ducts is permitted, but not required. • Item 8.5: Visual inspection of clothes dryer exhaust ducts is permitted, but not required. • Item 9.1: Intermittent bath fans that are not used as part of whole-house system are recommended, but not required, to be ≤ 3 sones. Water Management System Builder Checklist All Items on this Checklist must be completed, as originally required under Rev. 07, except that builders are permitted, but not required, to maintain documentation demonstrating compliance for each individual certified home. Correspondingly, Raters are permitted, but not required, to collect the completed checklist. Note that once partners transition to Rev. 08, then all the requirements of Rev. 08 apply, even during this transition year. For example, for a designer using the Rev. 08 HVAC Design Report, the option to use the 'next nominal size' no longer applies, because this is not allowed in Rev. 08.

Archive ENERGY STAR Certified Homes Policy Record

00616	**09/01/2017**	**All National & Regional Program Documents**	**Clarification**	**How to use the Rev. 08 HVAC Design Report with Rev.07 Checklists**
				Issue: Partners have asked if it is permissible to use a Rev. 08 HVAC Design Report and HVAC Commissioning Checklist with the Rev. 07 Thermal Enclosure System Rater Checklist and HVAC System Quality Installation Rater Checklist.
				Resolution: For homes permitted prior to 07/01/2016, if the designer uses the Rev. 08 HVAC Design Report and the contractor uses the Rev. 08 HVAC Commissioning Checklist, the Rater must complete the Rev. 08 Rater Design Review Checklist in lieu of completing Section 1 of the Rev. 07 HVAC System QI Rater Checklist. However, the remainder of the Rev. 07 HVAC System QI Rater Checklist and the entire Rev. 07 Thermal Enclosure System Rater Checklist are permitted to be used to certify the home, in lieu of the Rev. 08 Rater Field Checklist.
00617	**09/01/2017**	**All National & Regional Program Documents**	**Clarification**	**Rev. 08 Implementation Timeline in the Pacific Northwest**
				Issue: Partners in the Pacific Northwest have asked for clarification on the implementation timeline for Rev. 08. Partners using the Northwest ENERGY STAR program requirements are required to transition to Rev. 08 for homes permitted on or after 07/01/2015, as that regional program is sunset in exchange for the national program. However, some partners in this region have also had the option to certify homes under the national program requirements, which requires the use of Rev. 08 for homes permitted on or after 07/01/2016. Clarification is required as a result of the two different implementation timelines for Rev. 08 in this region.
				Resolution: All homes that are certified using the Version 3 or 3.1 National Program Requirements are permitted to use the associated implementation timeline for Revision 08, which applies to all homes permitted on or after 07/01/2016. As the Northwest ENERGY STAR program requirements wind down, remaining homes certified using those program requirements are required to transition to Rev. 08 for homes permitted on or after 07/01/2015.
00439	**07/01/2015**	**All National & Regional Program Documents**	**Clarification**	**Northwest Regional Checklists - Integration into National Program**
				Issue: The Northwest has long maintained a regional, equivalent, version of the national program. In recent years, the regional and national programs have increased their alignment to the point that the regional program can now be transitioned to the national program, with only a handful of regional alternatives and exemptions maintained.
				Resolution: To foster the integration of the Northwest regional program into the national program requirements, two Footnotes will be added to the national program documents that, for the time-being, maintain regional alternatives and exemptions for specific Items. The first of these two Footnotes will be added to the HVAC Commissioning Checklist to accommodate current regional alternatives and exemptions related to commissioning. This Footnote, Footnote 2, will read as follows:

				"For a home certified in the State of ID, MT, OR, or WA, the following alternatives and exemptions apply: a. For a home with an air-source heat pump up to 65 kBtuh with a forced-air distribution system (i.e., ducts), the contractor is permitted to complete the 2011 PTCS® Commissioned Heat Pump Certificate and Startup Form in lieu of this Checklist. b. For a home with a split air conditioner or unitary air conditioner up to 65 kBtuh with a forced-air distribution system (i.e., ducts), the contractor is permitted to complete the Northwest Central AC Commissioning & Startup Form in lieu of this Checklist. c. For a home in a location with < 600 CDD, the completion of this Checklist is recommended, but not required." The second of these two Footnote will be added to the Rater Field Checklist to accommodate current regional alternatives and exemptions related to duct testing. This Footnote, Footnote 38, will read as follows: "For a home certified in the State of ID, MT, OR, or WA that is permitted before 01/01/2016, as an alternate to Rater-verified duct leakage, a PTCS® Duct Sealing Certification Form is permitted to be collected by the Home Energy Rater."
00440	**07/01/2015**	**All National & Regional Program Documents**	**Clarification**	**Applicable version of ASHRAE 62.2 standard**
				Issue: Partners have asked if they are permitted to, or are required to, use the latest version and addenda of the ASHRAE 62.2 standard.
				Resolution: Because of the significant differences to the ASHRAE 62.2 standard that can occur due to the release of new addenda and new versions, it will be clarified that partners are permitted to, but are not required to, use the latest version and addenda of the standard. To reflect this change on the HVAC-C, the reference to the standard in Item 1.1 will be changed to "ASHRAE 62.2-2010 or 2013"; Footnote 1 will be changed, in part, to read, "This report is designed to meet the requirements of ASHRAE 62.2-2010 / 2013"; and the beginning of Footnote 7 will be changed to read, "Airflow design rates and run-times shall be determined using ASHRAE 62.2-2010 or later. Designers are permitted, but not required, to use published addenda and/or the 2013 version of the standard to assess compliance." To reflect this change on the HVAC-R, the beginning of Footnote 1 will be changed to read, "This Checklist is designed to meet the requirements of ASHRAE 62.2-2010 / 2013." All remaining references to "ASHRAE 62.2-2010" in the National Program Requirements, HVAC-C, and HVAC-R are simply definitions and will remain unchanged. Because the reference to the standard in Footnote 37 of the HVAC-R is also simply a definition, the phrase "and published addenda" will be deleted.
00602	**02/23/2017**		**Clarification**	**How to address homes with multiple permit dates**

		All National & Regional Program Documents		**Issue:** Partners have has asked whether a home with multiple permits must use the last permit date to determine which version of the program requirements to meet. In some cases, the issuance of a re-permit may have no impact on the efficiency-related code requirements of the home, while in other cases that may not be the case.
				Resolution: Because the causes and implications of a re-permit are varied, for homes that have multiple permit dates, Raters are permitted to use their discretion when selecting which permit date to use to determine the version of the program that the home must be certified under.
00647	**12/13/2017**	**All National & Regional Program Documents**	**Clarification**	**Single person or company is permitted to serve as both Rater and builder**
				Issue: A partner has asked whether a home can earn the ENERGY STAR if a single person or company is both the builder and Rater for the home.
				Resolution: The ENERGY STAR program does not currently have any policy that would prevent a builder from also acting as the Rater for a home, so long as the company has met the requirements to serve both roles (i.e., meets RESNET's requirements for Raters and meets EPA's requirements for builders). It is worth noting, however, that RESNET requires that Raters complete a "RESNET Home Energy Rating Standard Disclosure" form for each home and provide that to the rating client, who is responsible for providing a copy to the home owner / buyer. The disclosure form requires a Rater or the Rater's employer to indicate if they are also the builder or developer of the home. Furthermore, Raters are overseen by Providers, who would have to agree to oversee a Rater that is serving both roles.
00686	**09/01/2018**	**All National & Regional Program Documents**	**Refinement**	**Footer – Removal of implementation date**
				Issue: The permit date in the footer of all program documents, which is intended to communicate the enforcement date of a given Revision, has the potential to cause confusion. This is because implementation timelines for Versions of the program are contained in a different location, the Effective Date Sections of the program requirements documents. Therefore, partners must cross-reference these documents to determine which date is applicable.
				Resolution: To reduce unnecessary complexity and avoid potential confusion, the implementation dates for Revisions and their associated Footnotes will be removed from the footers of program documents. Furthermore, these dates will be integrated into the Effective Date Sections of the program requirements documents, per Policy Record Entries 00690, 00694, 00722, 00725, 00729, 00739, and 00749.
00685	**09/01/2018**	**All National & Regional Program Documents**	**Refinement**	**Replacement of references to "RESNET" and "HERS" with industry-standard terms**
				Issue: ENERGY STAR program documentation makes direct references to the Residential Energy Services Network (RESNET) and its Home Energy Rating System (HERS) Index.

				To date, RESNET is the only national EPA-approved Verification Oversight Organization (VOO), though EPA has provided a process by which other VOO's can be recognized. In addition, when Version 3 of the program requirements was first released, the Home Energy Rating System was a proprietary standard. Since that time, RESNET has created an ANSI-standard version – ANSI / RESNET/ ICC Std. 301. Partners have asked whether these terms should be updated to reflect industry-standard terms.
				Resolution: Because EPA has a process by which additional VOO's can operate using ANSI / RESNET / ICC Std. 301, references to RESNET will be revised as appropriate to reflect industry-standard terms. The terms RESNET and HERS will be replaced in all program documents with the industry-standard terms "EPA-Approved Verification Oversight Organization" and "ERI" respectively.
00001	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Change**	**Program eligibility– Harmonizing requirements with Multifamily High-Rise Program**
				Issue: EPA has recently launched its ENERGY STAR Multifamily High Rise Program. The eligibility requirements of the ENERGY STAR for New Homes Program need to be harmonized with the eligibility requirements of that new program.
				Resolution: The eligibility requirements on page one of the National Program Requirements will be revised as follows: "To earn the ENERGY STAR under the Version 3 Guidelines, homes must be one of the following: • "Single family homes; OR • "Units in any multifamily building with 4 units or fewer; OR • "Units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • "Units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building.[4] When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. "Units in multifamily buildings that are not eligible for the ENERGY STAR through the New Homes program may be eligible to qualify through the Multifamily High Rise Program. The associated footnotes will be as follows: 1. "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. 2. "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. 3. "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. 4. "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 qualify for 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."
00002	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Program eligibility– Access to thermostats in multifamily units**
				Issue: One eligibility requirement for units in multifamily buildings with 4 or 5 stories above-grade is that they must have their own heating, cooling, and hot water systems, separate from other units. Partners have asked whether HVAC thermostats for these units and for multifamily units in general must be accessible to occupants, or if they can be accessible only to the property owner.
				Response: The program does not impose any requirements related to HVAC thermostat access. However, if a continuously-operating ventilation or exhaust fan is present, note that ASHRAE 62.2-2010 and Item 6.4 of the HVAC System Quality Installation Rater Checklist do require that override controls be readily accessible to the occupant.
00003	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Program eligibility – Qualifying existing homes**
				Issue: Partners have asked if existing homes can earn the ENERGY STAR through renovations.
				Response: Existing homes can earn the ENERGY STAR, but they must fulfill all requirements; no requirements are waived.
00193	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be

				concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units 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." A footnote will be added to define the term "dwelling unit" that reads: "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." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00189	**06/27/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Comment**	**ENERGY STAR certification of homes undergoing a 'gut rehabilitation'**
				Issue: Policy Record ID 00282 contains the most recent resolution of this issue. This issue (ID 00189) is only being retained to maintain a complete Policy Record. Partners have asked if existing homes are permitted to be ENERGY STAR certified and if so, whether there are any exemptions or alternatives to the guidelines that apply to these homes.
				Resolution: Policy Record ID 00282 contains the most recent resolution of this issue. This issue (ID 00189) is only being retained to maintain a complete Policy Record. Historically, EPA has allowed existing homes to earn the ENERGY STAR when all program requirements are met. EPA does recognize that some of the current program requirements present unique challenges for homes undergoing a 'gut rehabilitation'. Therefore, EPA is currently assessing whether there are alternate compliance options that would meet the intent of the current requirements and allow these homes to be ENERGY STAR certified. Note that

				the goal is not to develop a separate label, but rather to allow these homes to more easily demonstrate that they meet the same intent as new homes that have earned the label.
00437	**03/04/2015**	**National Program Requirements (Version 3, Rev. 07)**	**Comment**	**Continued implementation of Version 3 in Virginia**
				Issue: Partners have questioned whether a Version 3.1 implementation date will be defined in response to the latest version of the Virginia Uniform Statewide Building Code. This code, with an enforcement date of 7/14/2015, incorporates the 2012 IECC with substantive amendments.
				Resolution: An analysis was completed to estimate the savings of a Version 3 home relative to the latest version of the Virginia Uniform Statewide Building Code. This analysis yielded a weighted average savings of approximately 12%. Because Version 3 continues to offer meaningful savings in Virginia relative to the latest code, Version 3.1 will not be implemented in Virginia at this time. Version 3.1 will not be implemented in Virginia until another state-level code update occurs or until EPA defines a nationwide implementation date for Version 3.1.
00441	**07/01/2015**	**National Program Requirements (Version 3, Rev. 07)**	**Clarification**	**Certifying Homes Section – Addition or renovated space generally not eligible to be certified**
				Issue: Partners have asked if an addition to an existing dwelling unit or a renovated space within an existing dwelling unit is eligible to be ENERGY STAR certified.
				Resolution: An addition or renovated space within an existing structure is not eligible to earn the ENERGY STAR unless it meets all of the following conditions: (1) the addition or renovated space is itself a self-contained dwelling unit, as defined by the 2009 IECC (i.e., a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation), and (2) the addition or renovated space has a separate mailing address from the existing structure.
00442	**07/01/2015**	**National Program Requirements (Version 3, Rev. 07)**	**Clarification**	**Certifying Homes Section – Mini-split / multi-split systems serving multiple dwelling units are central systems**
				Issue: Partners have asked whether a mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units should be classified as a central system. The significance of this classification is that dwelling units in multifamily buildings with 4 or 5 stories above-grade must have their own heating, cooling, and hot water systems, separate from other units, to be eligible to participate in the ENERGY STAR Certified Homes program.
				Resolution: A mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units shall be classified as a central system. Therefore, with such a configuration, dwelling units in multifamily buildings with 4 or 5 stories above-grade would not be eligible to participate in the ENERGY STAR Certified

				Homes program. However, such multifamily buildings would be eligible to be certified through the Multifamily High Rise program, as long as all other eligibility criteria were met.
00443	**07/01/2015**	**National Program Requirements (Version 3, Rev. 07)**	**Clarification**	**Certifying Homes – Shared heating, cooling, & hot water systems**
				Issue: Partners have asked if dwelling units in a multifamily building with 4 units or fewer or with 3 stories or fewer above-grade are eligible to be certified if they share heating, cooling, or water systems.
				Resolution: Dwelling units in any multifamily building with 4 units or fewer, and dwelling units in multifamily buildings with 3 stories or fewer above-grade are eligible to be certified, even if they share heating, cooling, and hot water systems, as long as they meet all program requirements.
00299	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Refinement**	**Qualifying Homes Section – Regional program requirements**
				Issue: The Qualifying Homes Section states that: "Homes may earn the ENERGY STAR using the following ENERGY STAR Prescriptive Path or Performance Path in all states except those for which regional program requirements have been developed. See EPA's Web site for the latest list." Because the states with regional program requirements are not explicitly stated, partners may unknowingly use the National Program Requirements when regional program requirements exist for their state.
				Resolution: To ensure partners do not unknowingly use the National Program Requirements when regional program requirements exist for their state, the last paragraph in the Qualifying Homes Section will be revised as follows: "Homes may earn the ENERGY STAR using the following ENERGY STAR Prescriptive Path or Performance Path in all locations except CA, FL, GU, HI, MA, PR, and the Pacific Northwest, for which regional program requirements have been developed. 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."
00444	**07/01/2015**	**National Program Requirements (Version 3, Rev. 07)**	**Change**	**Prescriptive Path - Removal of the Prescriptive Path**
				Issue: There are currently two compliance paths available to partners that lead to certification – the Performance Path and the Prescriptive Path. Each offers unique benefits and constraints, and having two paths was intended to provide partners with added flexibility when certifying homes. However, in practice, 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.

				Resolution: To simplify the program, the Prescriptive Path will be removed in Revision 08. Specifically, homes with a permit date on or after 60 days after the release of Rev. 08 will only be permitted to use the Performance Path, which will be renamed the ENERGY STAR Certification Process. However, to minimize the disruption to partners who might have had Prescriptive Path projects in process at the time Revision 08 was released, homes with a permit date before 09/01/2015 will be permitted to use the modified Prescriptive Path allowance. The modified Prescriptive Path allowance provides a single set of measures that can be used to construct an ENERGY STAR Certified Home. No tradeoffs are allowed. However, under this allowance, modeling is required to ensure that all homes receive a HERS rating. The only purpose of this allowance is to provide an alternative ENERGY STAR HERS Index Target. This alternative target will only be beneficial for homes in which the Prescriptive Path efficiency measures do not produce a HERS index that meets the default ENERGY STAR HERS Index Target. To reflect this change, all references to the Prescriptive Path, and any Footnotes that only reference the Prescriptive Path, will be removed from all program documents. Additionally a new Footnote will be 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. To minimize disruption to projects that are in process, homes with a permit date before 09/01/2015 are permitted to use a modified version of the Prescriptive Path in lieu of the Performance Path. For more information about this compliance option, visit: www.energystar.gov/v3prescriptivepath." Additionally, a new document that defines the modified Prescriptive Path allowance will be created and available at www.energystar.gov/v3prescriptivepath.
00300	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 3 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.

				To clarify this intent, the following sentence will be added to the end of Footnote 9: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00004	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Clarification**	**Prescriptive Path – Determining gross basement wall area**
				Issue: Partners have expressed difficulty determining the percentage of gross basement wall area that is below grade when walls are not in contact with either the ground or outdoor ambient air. This occurs, for example, when a wall separates the basement spaces of adjacent townhome units.
				Response: EPA intended to exclude walls that are not in contact with either the ground or outdoor ambient air because of the difficulty of determining the area of the above-grade and below-grade portions of those walls. The beginning of Footnote 3 will be revised to read as follows: "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)."
00301	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Clarification**	**Prescriptive Path - Below-grade wall area for a home with multiple basement spaces**
				Issue: Partners have asked how to determine whether at least half of the basement wall area is below grade for a home with multiple basement spaces.
				Resolution: For a home that has multiple basement spaces, the gross surface area of the walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.
00005	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Change**	**Prescriptive Path – Basement exclusion from Size Adjustment Factor**
				Issue: Partners have asked EPA to allow bedrooms in basements to be included when determining the Benchmark Home Size. In the rare instances where the majority of bedrooms in a home are located in the basement, excluding these bedrooms can result in the application of a significant Size Adjustment Factor, resulting in a meaningfully more stringent ENERGY STAR HERS Index Target.
				Response: To eliminate this hardship for these homes, EPA will now allow all bedrooms in the home to be counted when determining the Benchmark Home Size, regardless of location.

				This policy change will result in the same or less stringent target for all Partners. Note that no change is being made to EPA's policy of excluding floor area in basements with at least half of the gross surface area of the exterior walls below grade. That is to say, 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 when determining a home's Benchmark Home Size, Size Adjustment Factor, and eligibility to use the Prescriptive Path. The National Program Requirements will be revised as follows: "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. 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. If the CFA of the home to be built exceeds the CFA of the Benchmark Home, then the Performance Path shall be used. "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 this change 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). "If a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used."
00006	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Prescriptive Path – Lack of availability of right-sized equipment with required efficiency**
				Issue: Partners have asked what to do when there are no HVAC equipment models available that meet both the right-sizing and efficiency requirements of the Prescriptive Path.
				Resolution: All homes qualified under the Prescriptive Path must use equipment that meets both the prescriptive efficiency levels defined in the ENERGY STAR Reference Design and the right-sizing requirements of the HVAC System Quality Installation Contractor Checklist. If both requirements could not be met, then the home would need to pursue qualification using the Performance Path instead, where lower equipment efficiency is permitted. EPA may consider developing an additional prescriptive path option in the future to accommodate small homes, which benefit less from high-efficiency HVAC systems.
00007	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Refinement**	**Prescriptive Path – Errata**
				Issue: EPA has identified a minor typographical error in Step 1 of the Prescriptive Path in the National Program Requirements: "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.”
				Resolution: Step 1 of the Prescriptive Path will be revised as follows: “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.”
00302	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. The infiltration rate must also be verified for multifamily dwelling units certified using the Performance Path, if the infiltration rate is designed to be below that of the RESNET HERS Reference Home. Note that the RESNET HERS Reference Home infiltration rate is often significantly higher than the rate specified in the ENERGY STAR Reference Design. Therefore, if the RESNET HERS Reference Home infiltration rate is used in lieu of testing, other energy efficiency features will likely be required to compensate. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00303	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Refinement**	**Performance Path – Using software to determine the ENERGY STAR HERS Index Target**
				Issue: Partners have noted that all RESNET-accredited rating software programs used in the ENERGY STAR Certified Homes program are now capable of automatically configuring the ENERGY STAR Reference Design, calculating its associated HERS Index value, and then applying the Size Adjustment Factor to determine the ENERGY STAR HERS Index Target. As a result, Partners have questioned whether this process is still permitted to be completed manually.
				Resolution: To clarify that the process of determining the ENERGY STAR HERS Index Target must be completed using a RESNET-accredited rating software program, and is no longer permitted to be completed manually, the phrase “Use a RESNET-accredited Home Energy Rating software program…” will be added to the beginning of Step 1 of the Performance Path. Additionally, the second paragraph of Step 1 of the Performance Path, which states that Raters are permitted to calculate the ENERGY STAR HERS Index Target manually until software becomes available to do this automatically, will be removed.
00009	**07/25/2011**		**Comment**	**Performance Path – Modeling uncommon technologies**

		National Program Requirements (Version 3, Rev. 03)		**Issue:** Partners have asked how to model less common technologies when calculating a home's HERS Index (e.g., wood fired boilers, drain water heat recovery, evaporative coolers).
				Response: For partners that wish to use innovative technologies to improve the HERS index (e.g., to meet the ENERGY STAR HERS Index Target), EPA recommends that they submit an Innovative Design Request (IDR) to the RESNET Technical Subcommittee. In contrast, for partners that wish to use an innovative technology for a purpose other than to improve the HERS index (e.g., an alternate approach to meeting a detail on one of the inspection checklists), the partner shall first consult their Rater. In the event that a Rater is not able to determine whether the approach is consistent with the intent 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.
00104	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Performance Path - Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "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. Qualification shall only 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). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00304	**06/01/2013**		**Refinement**	**Step 2 of Performance Path - Reference to Thermal Enclosure System Rater Checklist**

		National Program Requirements (Version 3, Rev. 06)		**Issue:** Partners have noted that Step 2 of the Performance Path specifies that the Mandatory Requirements for All Qualified Homes in Exhibit 2 are required, but then also specifies that two specific Items in the Thermal Enclosure System Rater Checklist (TES) are also required. This reference to two specific Items in the TES is redundant and may create confusion.
				Resolution: To improve clarity, the reference to Items 1.2 and 2.1 of the TES in Step 2 of the Performance Path will be removed and the first paragraph of Step 2 will be revised as follows: "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 Qualified Homes in Exhibit 2 are also required and impose certain constraints on the energy measures selected (e.g., insulation levels, insulation installation quality, window performance, duct leakage)."
00445	**07/01/2015**	**National Program Requirements (Version 3, Rev. 07)**	**Refinement**	**Performance Path and Footnote 9 – Integration of cover page from Inspection Checklists**
				Issue: Partners have provided consistent feedback that the amount of paperwork required to certify a home should be minimized wherever possible.
				Resolution: As part of a larger effort to reduce the amount of paperwork required to certify a home, the cover page of the Inspection Checklists will be deleted and much of the content will be moved to the National 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 will be 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. The only exceptions to this rule are in the Thermal Enclosure System Section of the Rater Field Checklist, where the builder may assume responsibility for verifying a maximum of eight items. This option shall only be used at the discretion of the Rater. When exercised, the builder's

				responsibility will be formally acknowledged by the builder signing the checklist for the item(s) that they verified. 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 will be 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 for homes outside California, and the CEC-approved sampling protocol for homes in CA. 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."
00008	**07/25/2011**	**National Program Requirements (Version 3, Rev. 07)**	**Clarification**	**Performance Path – Modeling requirements for multifamily buildings**
				Issue: Partners have asked if, under the Performance Path, each unit in a multifamily building must be individually modeled to demonstrate compliance with its ENERGY STAR HERS Index Target. The current program requirements do not clearly state whether this is a requirement.
				Resolution: Each dwelling unit in a multifamily building must be individually modeled to demonstrate compliance with its ENERGY STAR HERS Index Target. EPA is aware of two other approaches that have been used by partners in the past, which will no longer be applicable. The first was to generate a single ENERGY STAR HERS index target using a single model for the entire building. While this approach was never explicitly allowed or encouraged, it was also never prohibited. In the time since this issue was identified, RESNET formed a multifamily high-rise working group to provide recommendations on how the HERS methodology should be applied to this sector. One of the recommendations of the working group was to explicitly

				prohibit modeling of a multifamily residential building in order to determine the HERS Index for that building or to apply that building-level HERS Index to the dwelling units in that building. The second was to model a subset of dwelling units using a policy developed for Version 2 of the program. This policy was developed primarily to address the challenge that a single set of efficiency measures applied to different dwelling units often results in different HERS index values. Because Version 2 of the program defined a single HERS index target within a climate zone, this variation made it more difficult for partners to select a single set of measures for all multifamily dwelling units. Beginning with Version 3, a dynamic HERS index target is defined for each home. This more easily allows partners to select a single set of measures across all dwelling units. Therefore, the Version 2 policy allowing a subset of dwelling units to be modeled was not intended to be applied to homes certified under v3 and is no longer applicable.
00010	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Performance Path – Requirement to use compact fluorescent lights**
				Issue: Partners have asked if there is a minimum requirement for installing compact fluorescent lights (CFLs) to qualify a home under the Performance Path of ENERGY STAR Version 2.5 and Version 3.
				Resolution: When using the Performance Path to qualify a home under Version 2.5 or Version 3, there is no minimum requirement for CFL installation. However, the home must meet the ENERGY STAR HERS Index Target, which is calculated using a reference design home with 80% efficient lighting as described in the Expanded ENERGY STAR Reference Design Definition. Therefore, if the percentage of CFLs in the home is lower than the percentage of CFLs in the Reference Design Definition, the home will likely need other efficiency improvements to achieve the HERS Index Target required for qualification.
00011	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Performance Path – Determining dishwasher efficiencies**
				Issue: Partners have asked how to find the Energy Factor (EF) of a dishwasher in order to model it under the Performance Path.
				Resolution: If an ENERGY STAR qualified dishwasher is installed and the model number is known, then the EF of the dishwasher can be found in the Qualified Product List on the ENERGY STAR qualified products website at the following link: http://www.energystar.gov/index.cfm?fuseaction=dishwash.search_dishwashers. If the EF cannot be determined from the Qualified Products List, the Rater should follow the guidance on minimum rated features provided in the RESNET 2006 Mortgage Industry National Home Energy Rating Standard, available at the following link: http://www.resnet.us/standards.
00097	**01/15/2012**		**Clarification**	**Partnership, Training, and Credentialing Requirements**

		National Program Requirements (Version 3, Rev. 04)		**Issue:** Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.
				Resolution: A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the "ENERGY STAR Performance Path" section and read as follows: "Partnership, Training, and Credentialing Requirements Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying 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. • 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.resnet.us/energystar."
00194	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Refinement**	**Partnership, Training, and Credentialing – Rater and Field Inspector training**
				Issue: EPA has identified that the website provided for Raters and Field Inspectors' Version 3 Training requirements is out of date.
				Resolution: Raters and Field Inspectors can find Version 3 Training requirements at www.energystar.gov/newhomestraining. This website will be provided in place of the out of date website.
00098	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Comment**	**Prescriptive & Performance Path - Dual-fuel air-source heat pump efficiency requirements**
				Issue: Partners have asked what minimum efficiency requirements must be met when installing a dual-fuel air-source heat pump.
				Resolution: If a home is earning the ENERGY STAR using the Prescriptive Path and a dual-fuel air-source heat pump heating system is being installed in the home, the heat pump must meet the minimum efficiency requirements specified in Exhibit 1. Additionally, the dual-fuel backup component must be ENERGY STAR qualified. If the home is earning the ENERGY STAR using the Performance Path, there is no minimum efficiency level that the HVAC equipment must meet. However, if an HVAC system is installed

				with an efficiency level lower than that specified by Exhibit 1, then other efficiency upgrades may be needed in order to achieve the ENERGY STAR HERS Index Target that must be met for the home to earn the ENERGY STAR.
00099	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Prescriptive Path – Required efficiency of gas furnaces**
				Issue: The minimum efficiency requirements for ENERGY STAR qualified gas furnaces manufactured after 02/01/2012 will increase from 90 AFUE to 95 AFUE for the U.S. North region, defined as states with population-weighted Heating Degree Days ≥ 5000. The ENERGY STAR Product Specification for Furnaces, Version 3.0, specifies which states are included in the U.S. North region. The ENERGY STAR Reference Design defined in Exhibit 1 currently requires an ENERGY STAR qualified 90 AFUE furnace in Climate Zones 4 through 8. Partners have asked how this will be modified to account for the new ENERGY STAR product specification for furnaces.
				Resolution: The ENERGY STAR for Homes guidelines will not be modified at this time to align with the more stringent efficiency level required in the new ENERGY STAR product specification for furnaces. The minimum efficiency level specified for gas furnaces in Climate Zones 4 through 8 under the Prescriptive Path and Exhibit 2 of the ENERGY STAR HERS Index Target Procedure will remain at 90 AFUE. The minimum requirement for gas furnaces in Climate Zones 4 through 8 in Exhibit 1 of the National Program Requirements will be revised by removing the phrase "ENERGY STAR qualified".
00100	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Change**	**Prescriptive Path - Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: To address partners' difficulties meeting the total duct leakage limit, the total duct leakage limit will be revised as follows: "Total duct leakage shall be ≤ 8 CFM25 per 100 sq. ft. of conditioned area." Because the total duct leakage threshold will not be changed for homes with less than 1,200 sq. ft. of conditioned floor area, there will no longer be a different threshold for those homes. Footnote 24 will be shortened to only include guidance related to duct leakage testing protocols: "Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol only after all components of the system have been installed (e.g., air

				handler and register grilles). Leakage limits shall be assessed on a per-system, rather than per-home, basis." Remaining guidance related to testing duct leakage to the outside has been will be consolidated in Footnote 25, which will read as follows: "For homes that have ≤ 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area. 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. Alternatively, testing of duct leakage to the outside can be waived 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."
00101	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Comment**	**Prescriptive Path – Minimum water heater efficiency requirements**
				Issue: Partners have asked if, when a solar water heater is used as the primary water heating system and an electric or gas system is used as a backup system under the Prescriptive Path, both the primary and backup systems must meet the required minimum efficiency levels.
				Resolution: When qualifying a home under the Prescriptive Path, all water heating systems, including backup systems, must meet the minimum efficiency requirements.
00102	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Refinement**	**Prescriptive Path – ENERGY STAR qualified lighting**
				Issue: The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.
				Resolution: To align terminology across programs, and to encourage partners to use ENERGY STAR qualified light fixtures in addition to qualified light bulbs, the Lighting & Appliances section will be revised to read in part: "ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations."
00446	**07/01/2015**	**National Program Requirements (Version 3, Rev. 07)**	**Change**	**Exhibit 1: Thermostat & Ductwork Section - Duct leakage limits for systems serving small spaces**
				Issue: Partners have indicated that they are having challenges meeting the total duct leakage limits defined in Item 4.1 of the HVAC System Quality Installation Rater Checklist for HVAC systems serving small spaces, such as a multifamily dwelling unit or a small zone within a home that has a dedicated system. While total leakage generally decreases as the amount of floor area served by the system decreases, the total leakage ultimately hits a 'floor' – a value that cannot be further decreased

				without extraordinary effort. This is primarily due to the air handler because the surface area of the enclosure, which generally correlates with the amount of leakage from that component, does not decrease linearly as the amount of floor area served by the system decreases.
				Resolution: To address the challenges that partners are experiencing for systems serving small spaces, an absolute amount of allowed duct leakage will be added to the program requirements. The current limit on total duct leakage at 'rough-in' will be 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 will be 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 will be 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."
00195	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Comment**	**Exhibit 1 – RESNET-defined Qualifying Light Fixture Locations**
				Issue: Partners have asked where to find RESNET's definition of Qualifying Light Fixture Locations.
				Resolution: The glossary of terms in Appendix B of the Mortgage Industry National Home Energy Rating Standards defines a Qualifying Light Fixture Location as follows: "For the purposes of rating, those light fixtures located in kitchens, dining rooms, living rooms, family rooms/dens, bathrooms, hallways, stairways, entrances, bedrooms, garage, utility rooms, home offices, and all outdoor fixtures mounted on a building or pole. This excludes plug-in lamps, closets, unfinished basements, and landscape lighting." This document is available at the following link: http://www.resnet.us/professional/standards/mortgage
00689	**09/01/2018**	**National Program Requirements (Version 3, Rev. 08)**	**Refinement**	**Exhibit 1 - ENERGY STAR certified products specification versions**
				Issue: Partners have noted the efficiency levels of ENERGY STAR certified products in Exhibit 1: ENERGY STAR Reference Design Home may not always align with the efficiency levels in the most recent specification of an ENERGY STAR certified product. They have asked why this is the case and whether revisions to ENERGY STAR product specifications impact the program requirements.
				Resolution: Efficiency levels of products described as "ENERGY STAR" in the Reference Design Home aligned with the specifications for the ENERGY STAR certified product when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI

				target, regardless of any subsequent revisions to ENERGY STAR certified product specifications. This clarification will be reflected in a new Footnote to Exhibit 1: ENERGY STAR Reference Design Home as follows: "Note that the efficiency levels of ENERGY STAR certified products aligned with these product specifications when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI target, regardless of any subsequent revisions to ENERGY STAR certified product specifications. EPA recommends, but does not require, that current ENERGY STAR products be included in ENERGY STAR homes. For current ENERGY STAR products, visit www.energystar.gov/products."
00693	**09/01/2018**	**National Program Requirements (Version 3.1, Rev. 08)**	**Refinement**	**Exhibit 1 - ENERGY STAR certified products specification versions**
				Issue: Partners have noted the efficiency levels of ENERGY STAR certified products in Exhibit 1: ENERGY STAR Reference Design Home may not always align with the efficiency levels in the most recent specification of an ENERGY STAR certified product. They have asked why this is the case and whether revisions to ENERGY STAR product specifications impact the program requirements.
				Resolution: Efficiency levels of products described as "ENERGY STAR" in the Reference Design Home aligned with the specifications for the ENERGY STAR certified product when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI target, regardless of any subsequent revisions to ENERGY STAR certified product specifications. This clarification will be reflected in a new Footnote to Exhibit 1: ENERGY STAR Reference Design Home as follows: "Note that the efficiency levels of ENERGY STAR certified products aligned with these product specifications when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI target, regardless of any subsequent revisions to ENERGY STAR certified product specifications. EPA recommends, but does not require, that current ENERGY STAR products be included in ENERGY STAR homes. For current ENERGY STAR products, visit www.energystar.gov/products."
00763	**09/01/2018**	**National Program Requirements (Version 3, Rev. 08)**	**Refinement**	**Exhibit 1 and Footnote 9 - References updated to latest RESNET standard**
				Issue: This document contains numerous references to the "RESNET Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Therefore, the current references are outdated.
				Resolution: References to the "RESNET Standard" will be updated to the ANSI-standard version. To reflect this change, the following edits will be made:

				• In the Envelope, Window, & Doors Section: "Insulation levels modeled to 2009 IECC levels and Grade I installation per ANSI / RESNET / ICC Standard 301." • In the Lighting & Appliances Section: "ENERGY STAR light bulbs modeled in 80% of ANSI / RESNET / ICC Standard 301-defined Qualifying Light Fixture Locations." • Footnote 9: "…A bedroom is defined by ANSI / RESNET / ICC Standard 301-2014 as…" In addition, where a specific version of Standard 301 is not specified, a new Footnote will be added as follows: "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings is used to model this parameter. "
00622	**09/01/2017**	**National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Exhibit 1 – Climate Zone 3 furnace reduced from 90 to 80 AFUE**
				Issue: Partners have expressed difficulty meeting the Version 3.1 HERS Index Target for Climate Zone 3, which has more aggressive targets relative to other climate zones. Specifically, partners in TX have noted that 90 AFUE furnaces are rarely installed and not perceived to be cost-effective. While the use of a 90 AFUE furnace is not mandatory, the Version 3.1 ENERGY STAR Reference Design home is configured with one in Climate Zone 3. Partners have indicated that there are few cost-effective measures available to compensate when a 90 AFUE furnace is omitted. EPA analyzed the impact of changing the gas furnace efficiency from 90 AFUE to 80 AFUE in Climate Zone 3, and found that meaningful energy savings for the ENERGY STAR Reference Home were maintained.
				Resolution: In order to address the challenges Partners have had in meeting the HERS Index Target for Climate Zone 3, while maintaining meaningful energy savings, the Gas Furnace AFUE for CZ 3 will be revised to 80 AFUE by updating the first bullet for Hot Climates in the Heating Equipment section of Exhibit 1 to "80 AFUE gas furnace,".
00764	**09/01/2018**	**National Program Requirements (Version 3.1, Rev. 08)**	**Refinement**	**Exhibit 1 - References updated to latest RESNET standard**
				Issue: This document contains numerous references to the "RESNET Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Therefore, the current references are outdated.
				Resolution: References to the "RESNET Standard" will be updated to the ANSI-standard version. To reflect this change, the following edits will be made: • In the Envelope, Window, & Doors Section: "Insulation levels modeled to 2012 IECC levels and Grade I installation per ANSI / RESNET / ICC Standard 301" • In the Lighting & Appliances Section: "ENERGY STAR light bulbs modeled in 90% of ANSI / RESNET / ICC Standard 301-defined Qualifying Light Fixture Locations."

<table>
<tr><td></td><td></td><td></td><td></td><td>In addition, where a specific version of Standard 301 is not specified, a new Footnote will be added as follows:
“The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings is used to model this parameter.”</td></tr>
<tr><td rowspan="3">00447</td><td rowspan="3">07/01/2015</td><td rowspan="3">National Program Requirements (Version 3, Rev. 07)</td><td rowspan="3">Refinement</td><td>Exhibit 2: Updated Terminology For Mandatory Requirements</td></tr>
<tr><td>Issue: Partners have provided consistent feedback that the workflow required to certify a home should be improved where possible.</td></tr>
<tr><td>Resolution: As part of a larger effort to improve the workflow required to certify a home, the inspection checklists required to certify a home will, in part, be rearranged and renamed to improve the workflow of the certification process. Exhibit 2 will be updated to reflect the revised program documents and who is responsible for completing each of them, as follows:
<table>
<tr><th>Party Responsible</th><th>Mandatory Requirements</th></tr>
<tr><td>Rater</td><td>• Completion of Rater Design Review Checklist
• Completion of Rater Field Checklist</td></tr>
<tr><td>HVAC System Designer</td><td>• Completion of HVAC Design Report</td></tr>
<tr><td>HVAC Installing Contractor</td><td>• Completion of HVAC Commissioning Checklist</td></tr>
<tr><td>Builder</td><td>• Completion of Water Management System Builder Requirements</td></tr>
</table></td></tr>
<tr><td rowspan="3">00305</td><td rowspan="3">06/01/2013</td><td rowspan="3">National Program Requirements (Version 3, Rev. 06)</td><td rowspan="3">Refinement</td><td>Exhibit 2 – Redundant Section header and accompanying text removed</td></tr>
<tr><td>Issue: Partners have noted that the Section header and text accompanying Exhibit 2 contain information already found in the Performance Path, Prescriptive Path, and title of Exhibit 2.</td></tr>
<tr><td>Resolution: The Section header (i.e., “Mandatory Requirements for All ENERY STAR Qualified Homes”) and accompanying text (i.e., “As noted in the Performance Path and the Prescriptive Path, all ENERGY STAR Qualified New Homes must meet the requirements of the checklists in Exhibit 2”) will be removed to eliminate redundancy.</td></tr>
<tr><td rowspan="2">00306</td><td rowspan="2">06/01/2013</td><td rowspan="2">National Program Requirements (Version 3, Rev. 06)</td><td rowspan="2">Change</td><td>Exhibit 2 & Footnote 29 - Removal of Indoor airPLUS Checklist as compliance option</td></tr>
<tr><td>Issue: Partners have noted that EPA’s Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu</td></tr>
</table>

				of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 2 as will Footnote 29, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00196	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Refinement**	**Exhibit 3 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 3, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 3. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from the Prescriptive Path section.
00448	**07/01/2015**	**National Program Requirements (Version 3, Rev. 07)**	**Refinement**	**Effective Date Section – Addition of Northern Mariana Islands**
				Issue: The Effective Date Section includes a list of locations for which regional program requirements have been developed. This list does not currently contain locations for which regional program requirements have been developed since the release of Revision 07.
				Resolution: To ensure partners do not unknowingly use the National Program Requirements when regional program requirements exist for their region, the list of locations with regional program requirements will be revised to include the Northern Mariana Islands as follows: "Regional program requirements and associated implementation schedules have been developed for homes in CA, FL, GU, HI, the Northern Mariana Islands, PR, and the Pacific Northwest."
00449	**07/01/2015**	**National Program Requirements (Version 3, Rev. 07)**	**Refinement**	**Effective Date Section, Exhibit 4, & Footnote 28 – Reformatting of implementation timelines**
				Issue: Partners have noted that this Section and Exhibit 4 still include references to Version 2 and Version 2.5, which are no longer applicable, and omit references to Version 3.1, which is applicable in certain States. As a result, this may confuse partners about what Version is applicable to a home that will be certified.
				Resolution: The Effective Date Section will be refined to indicate that Version 3 is applicable unless otherwise noted and to list the locations with regional program requirements. In

				addition, the graphic in Exhibit 4 will be replaced with a table listing the locations for which the Version 3.1 implementation timeline has been defined. Additionally, Footnote 28, which defines 'final inspection' and is no longer relevant, will be deleted.
00307	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Clarification**	**Exhibit 4 – Implementation timeline for national versus regional program requirements**
				Issue: Partners have noted that the implementation schedule in Exhibit 4 is only applicable to the National Program Requirements. Separate regional program requirements and associated implementation schedules have been developed for CA, FL, GU, HI, MA, PR, and the Pacific Northwest. Partners have suggested that this point be clarified in Exhibit 4 to prevent confusion.
				Resolution: To clarify that the implementation schedule in Exhibit 4 is only applicable to the National Program Requirements and not to regional program requirements, the title of Exhibit 4 will be revised as follows: "Exhibit 4: National Program Requirements Implementation Schedule" To further clarify this point, the text accompanying this Exhibit in the Effective Date section will be revised as follows: "Use Exhibit 4 to determine the version of the guidelines to be used when earning the ENERGY STAR through the National Program Requirements. Note that regional program requirements and associated implementation schedules have been developed for homes in CA, FL, GU, HI, MA, PR, and the Pacific Northwest."
00012	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Clarification**	**Exhibit 4, Footnote 2 – Definition of permit dates**
				Issue: Partners have asked if Providers can assign deemed permit dates to a home when they cannot determine either the permit date or the date of the contract.
				Response: EPA's policy is that the permit or contract date determines the version of the ENERGY STAR guidelines a home is eligible to be qualified under. EPA believes that one of these two dates should generally be available. However, in cases where the permit date or contract date is not available, Providers have discretion to estimate the permit date based on other construction schedule factors. These assumptions should be both defensible and documented. Footnote 2 will be revised to read as follows: "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 were 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."
00013	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Clarification**	**Exhibit 4, Footnote 3 – Timeline for low-income projects**
				Issue: Partners have asked EPA to clarify several aspects of the extended Version 2 timeline for low-income projects financed through low-income housing agencies, including the following:

				• What kind of organization qualifies as a “low-income housing agency”? • What kind of financial support qualifies as “funding”? • How should builders and developers document when funding applications are received by funding agencies? • What is the overall intent of the extended Version 2 timeline for this kind of project?
				Response: By "low-income housing agency,” EPA means any entity that provides public funding to nonprofit builders and developers for the construction of housing projects specifically for low-income tenants. By "funding," EPA means public funding such as public grants or Low Income Housing Tax Credit (LIHTC) funds. The funding must be critical to the project financing, such as financing land acquisition, infrastructure, or construction. Funding intended for noncritical activities, such as for providing mortgage financing to homebuyers, does not qualify for the extended timeline. It is the responsibility of the funding applicant (the developer and builder) to keep on file written proof that they applied for public funds for use in constructing a low-income housing project to be ENERGY STAR qualified under Version 2. This documentation should identify the funding agency and the date when the funding application was received by the funding agency. This could be a copy of the funding application itself that has been date stamped by the funding agency. If there is no documentation that indicates when the funding application was received by the funding agency, there should at least be documentation that indicates when the funding application was sent to the funding agency by the funding applicant. It is the responsibility of the developer and builder to make this documentation available to the Rater (as well as to EPA upon request) so the Rater can verify whether or not the housing project qualifies for this exemption to the national Version 3 implementation timeline. Also, the builder or developer is responsible for providing to the Rater (as well as EPA upon request) a copy of documentation that shows that the funding was awarded prior to completion of the housing project. The intent of the low-income housing exemption to the national Version 3 implementation timeline is to give nonprofit low-income housing builders and developers additional time to build homes to earn the ENERGY STAR label under Version 2 with the understanding that low-income housing projects typically require some form of public funding in order to be constructed and that the process for obtaining public funding typically adds time to the build-out timeline. EPA decided to provide this exemption based on when the funding application was received as opposed to when the application was approved or when funding was actually received in order to avoid penalizing nonprofit low-income housing developers and builders for delays caused by the funding agency in reviewing and approving funding applications.
00103	**01/15/2012**		**Comment**	**Exhibit 4 – Implementation timeline for projects funded through multiple low-income housing agencies**

		National Program Requirements (Version 3, Rev. 04)		**Issue:** Partners have asked if, when a low-income project is financed through several low-income housing agencies, each one of the agencies must receive the application for funding prior to April 1st, 2011 for the project to be eligible to earn the ENERGY STAR under Version 2 of the guidelines.
				Resolution: If at least one of the low-income housing agencies received the application for funding by April 1st, 2011, then the project is eligible to earn the ENERGY STAR under the Version 2 guidelines until January 1, 2013.
00308	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Refinement**	**Exhibit 4 – Consolidation of Footnotes**
				Issue: Partners have noted that Exhibit 4 contains its own set of Footnotes separate from the general Footnotes for the rest of the document, which may cause confusion. Furthermore, they have noted that some of these Footnotes are duplicative of the general Footnotes for the rest of the document, others are obsolete, and others are specific to Exhibit 4.
				Resolution: To improve the clarity of the document, Footnote 1 of Exhibit 4 will be moved to the general Footnotes for the rest of the document and renumbered accordingly. Footnote 2 of Exhibit 4, which is duplicative of the general Footnote 15, will be deleted and Footnote 15 will be referenced instead. Footnote 3 of Exhibit 4, which allowed low-income projects financed through low-income housing agencies to earn the ENERGY STAR under the last iteration of the guidelines until January 1, 2013, is no longer applicable and will be removed. Footnote 4 of Exhibit 4, which allowed advance labeling of homes under Version 2.5 and prohibited homes from being certified under Version 3 until January 1, 2012, is no longer applicable and will be removed. Footnote 5 of Exhibit 4, which allowed labeling of homes under Version 3 prior to January 1, 2012 where a utility or state sponsor was mandating or incentivizing early adoption, is no longer applicable and will be removed.
00586	**06/30/2016**	**National Program Requirements (Version 3, Rev. 08)**	**Change**	**Exhibit 4 – Extension of NV v3.1 implementation timeline**
				Issue: Partners have requested that EPA extend the implementation timeline for v3.1 in NV. They have indicated that they need additional time to prepare to meet Version 3.1 in the most cost-effective manner. This entails procuring new efficiency measures previously unavailable or with limited availability in their marketplace (e.g., high-efficiency storage water heaters) and changing construction practices (e.g., converting to a conditioned attic).
				Resolution: Because partners are not fully prepared to transition on 07/01/2016, and because a short extension will have a meaningful impact on the ease with which they can certify homes under v3.1, EPA will extend the implementation date to homes permitted on or after 10/01/2016.

				Going forward, EPA will be even more proactive with partners in states with a v3.1 implementation timeline to help ensure that other extensions are not warranted. To reflect this change, the implementation timeline for NV in Exhibit 4 will be revised from 07/01/2016 to 10/01/2016.
00587	**06/30/2016**	**National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Exhibit 4 – Extension of NV v3.1 implementation timeline**
				Issue: Partners have requested that EPA extend the implementation timeline for v3.1 in NV. They have indicated that they need additional time to prepare to meet Version 3.1 in the most cost-effective manner. This entails procuring new efficiency measures previously unavailable or with limited availability in their marketplace (e.g., high-efficiency storage water heaters) and changing construction practices (e.g., converting to a conditioned attic).
				Resolution: Because partners are not fully prepared to transition on 07/01/2016, and because a short extension will have a meaningful impact on the ease with which they can certify homes under v3.1, EPA will extend the implementation date to homes permitted on or after 10/01/2016. Going forward, EPA will be even more proactive with partners in states with a v3.1 implementation timeline to help ensure that other extensions are not warranted. To reflect this change, the implementation timeline for NV in Exhibit 4 will be revised from 07/01/2016 to 10/01/2016.
00620	**09/01/2017**	**National Program Requirements (Version 3, Rev. 08)**	**Change**	**Exhibit 4 - Extension of TX v3.1 implementation timeline**
				Issue: Partners have expressed difficulty meeting the Version 3.1 HERS Index Target for Climate Zone 3 in Texas, which has more aggressive targets relative to other climate zones. In order to address difficulties faced by these partners, and maintain the program's goal of market transformation in TX and elsewhere, several changes will be made to the ENERGY STAR Reference Design Definitions. HERS software vendors, Raters, and builders will require additional time beyond the current v3.1 implementation date for TX of 10/01/2017 to respond to these changes.
				Resolution: The v3.1 implementation timeline for TX will be extended to provide sufficient time for HERS software to be released and for Raters to use the updated software to help their builders meet the Version 3.1 program requirements. Specifically, the v3.1 implementation timeline for TX will be extended from 10/01/2017 to 07/01/2018. To reflect this change, the implementation timeline for TX in Exhibit 4 will be revised from "On or after 10/01/2017" to "On or after 07/01/18".
00624	**09/01/2017**	**National Program Requirements**	**Change**	**Exhibit 4 - Extension of TX v3.1 implementation timeline**
				Issue: Partners have expressed difficulty meeting the Version 3.1 HERS Index Target for Climate Zone 3 in Texas, which has more aggressive targets relative to other climate zones. In

		(Version 3.1, Rev. 08)		order to address difficulties faced by these partners, and maintain the program's goal of market transformation in TX and elsewhere, several changes will be made to the ENERGY STAR Reference Design Definitions. HERS software vendors, Raters, and builders will require additional time beyond the current v3.1 implementation date for TX of 10/01/2017 to respond to these changes.
				Resolution: The v3.1 implementation timeline for TX will be extended to provide sufficient time for HERS software to be released and for Raters to use the updated software to help their builders meet the Version 3.1 program requirements. Specifically, the v3.1 implementation timeline for TX will be extended from 10/01/2017 to 07/01/2018. To reflect this change, the implementation timeline for TX in Exhibit 4 will be revised from "On or after 10/01/2017" to "On or after 07/01/18".
00780	**09/01/2018**	**National Program Requirements (Version 3, Rev. 08)**	**Change**	**Exhibit 4 - Continued Use of Rev. 08 HVAC Design Report**
				Issue: Partners have noted that the HVAC Design Report is only required to be collected once per system design, even if multiple homes are built using this design. Due to the effort required to collect the HVAC Design Report, they have asked whether previously collected Rev. 08 documentation can continue to be used after the release of the next Revision of the program requirements, so long as no aspect of the system design changes.
				Resolution: Because the next Revision of the HVAC Design Report will not require collection of any additional information or impose any new requirements, and will maintain or increase compliance tolerances, a design documented using Rev. 08 of the HVAC Design Report would, by definition, meet the requirements of the next Revision. Therefore, previously collected Rev. 08 HVAC Design Reports will be permitted to be used after the release of the next Revision of the program requirements, so long as the no aspect of the system design changes. To reflect this change, a new Footnote will be added to Exhibit 4, as follows: "Homes certified under Rev. 09 of the program requirements are permitted to use either Rev. 08 or 09 of the National HVAC Design Report."
00014	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Refinement**	**Footnote 8 – Slab framing systems**
				Issue: Partners have asked EPA to define the phrase "slab framing system" in Footnote 8.
				Response: Footnote 8 will be revised to read as follows: "Insulation shall be verified by a Rater to achieve Grade I installation as defined in the RESNET Standards, except for ceiling, wall, and floor assemblies with continuous rigid insulation sheathing. For such homes, Grade II installation is acceptable for the cavity insulation only if the rigid insulation sheathing meets or exceeds the following levels: R-3 in Climate Zones 1 to 4; R-5 in Zones 5 to 8."
00197	**09/10/2012**		**Clarification**	**Footnote 8 - Definition of a Rater**

		National Program Requirements (Version 3, Rev. 05)		**Issue:** Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 8, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 8 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. 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."
00309	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Refinement**	**Footnote 10 – Complete definition of ENERGY STAR Reference Design**
				Issue: Partners have noted that Footnote 10 defines where the complete definition of the ENERGY STAR Reference Design can be found. This information is already provided in Step 1 of the Performance Path. Therefore, this Footnote is redundant.
				Resolution: To avoid redundancy, Footnote 10 will be removed.
00105	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Footnote 10d – Minimum insulation requirements when using a total UA calculation**
				Issue: Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that "while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated."
				Resolution: To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 10d will be revised as follows: "…Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated..."
00421	**09/23/2013**	**National Program Requirements (Version 3, Rev. 07)**	**Change**	**Footnote 10d – Inclusion of Fenestration in Total UA Calculation**
				Issue: Policy Record Entry 00444 contains the most recent resolution of this issue. This issue (ID 00421) is only being retained to maintain a complete Policy Record. Partners have requested that fenestration performance be included in the calculation of total UA.

				Both the Performance Path and Prescriptive Path already define minimum performance limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than these limits from contributing to the total UA of the home.
				Resolution: Policy Record Entry 00444 contains the most recent resolution of this issue. This issue (ID 00421) is only being retained to maintain a complete Policy Record. Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define minimum performance limits for fenestration U-factor and SHGC, fenestration that does exceed these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 10d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method."
00198	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Refinement**	**Footnote 14 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 14.
				Resolution: The word "were" in Footnote 14 will be revised to "where".
00199	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Clarification**	**Footnote 22 – Allowance to use integrated/combined hot water products**
				Issue: Partners have asked if a single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in an ENERGY STAR Certified Home.
				Resolution: A single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating

				and domestic hot water shall be used. In contrast, a tankless coil water heater, where domestic water flows through a coil installed in the space heating system, is not permitted, due to the low efficiency of this system type. To clarify the allowable integrated domestic hot water and space heating systems, Footnote 22 will be revised as follows: “Domestic hot water systems that are integrated with the space-heating system are permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating and domestic hot water shall be used. A ‘tankless coil water heater’, where domestic water flows through a coil installed in the space-heating system, is not permitted.”
00310	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Clarification**	**Footnote 24 - Applicability of thermostats with ‘Adaptive Recovery’ technology**
				Issue: Partners have asked if Footnote 24, which states: “For homes with heat pumps, the thermostat shall have ‘Adaptive Recovery’ technology to prevent the excessive use of electric backup heating,” is applicable to both air-source and ground-source heat pumps.
				Resolution: The requirement for thermostats with ‘Adaptive Recovery’ technology applies to any heat pump with an electric resistance heating element used to supplement the capacity of the heat pump, regardless of whether the heat pump is air-source or ground-source. Note that such a thermostat is not required for a home with a heat pump that only includes an electric resistance heating element used during compressor failure (i.e., emergency heat). To clarify when this requirement applies, Footnote 24 will be revised as follows: "For homes with heat pumps that contain an electric resistance heating element used to supplement the capacity of the heat pump, the thermostat shall have ‘Adaptive Recovery’ technology to prevent excessive use of the heating element."
00438	**03/26/2015**	**National Program Requirements (Version 3.1, Rev. 03)**	**Change**	**Extended Enforcement Timeline for Calvert and St. Mary’s County, MD**
				Issue: EPA’s general intent in defining the implementation timeline for Version 3.1 is to enforce it beginning with homes permitted one year after state-level implementation of the 2012 IECC, or equivalent, code. While this general intent should accommodate most states, a unique situation has arisen in Maryland. Maryland adopted the 2012 IECC statewide and began enforcing it in January 2013. However, two counties – Calvert and St. Mary’s– adopted county-level regulations that maintained use of the 2009 IECC, despite the statewide adoption of the 2012 IECC. This conflict in state vs. local code adoption will be resolved on July 1, 2015, when the entire state (including these two counties) will adopt the 2015 IECC. In the interim period between 04/01/15 and 07/01/15, EPA’s current policy would require that homes in these two counties certify homes under v3.1 relative to the 2009 IECC.

				Resolution: The v3.1 implementation timeline for Calvert and St. Mary's counties in Maryland will be adjusted to accommodate the temporary and unique enforcement of the 2009 IECC, in lieu of the statewide adoption of the 2012 IECC. Specifically, the v3.1 implementation timeline for these two counties will be extended by three months, from 04/01/15 to 07/01/15. In Exhibit 4, the row for DC, IL, MD, RI will be modified to read "On or after 04/01/2015, except for Calvert County and St. Mary's County in MD, for which the applicable permit date is on or after 07/01/2015."
00450	**07/01/2015**	**National Program Requirements (Version 3.1, Rev. 05)**	**Clarification**	**Certifying Homes Section – Addition or renovated space generally not eligible to be certified**
				Issue: Partners have asked if an addition to an existing dwelling unit or a renovated space within an existing dwelling unit is eligible to be ENERGY STAR certified.
				Resolution: An addition or renovated space within an existing structure is not eligible to earn the ENERGY STAR unless it meets all of the following conditions: (1) the addition or renovated space is itself a self-contained dwelling unit, as defined by the 2009 IECC (i.e., a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation), and (2) the addition or renovated space has a separate mailing address from the existing structure.
00451	**07/01/2015**	**National Program Requirements (Version 3.1, Rev. 05)**	**Clarification**	**Certifying Homes Section – Mini-split / multi-split systems serving multiple dwelling units are central systems**
				Issue: Partners have asked whether a mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units should be classified as a central system. The significance of this classification is that dwelling units in multifamily buildings with 4 or 5 stories above-grade must have their own heating, cooling, and hot water systems, separate from other units, to be eligible to participate in the ENERGY STAR Certified Homes program.
				Resolution: A mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units shall be classified as a central system. Therefore, with such a configuration, dwelling units in multifamily buildings with 4 or 5 stories above-grade would not be eligible to participate in the ENERGY STAR Certified Homes program. However, such multifamily buildings would be eligible to be certified through the Multifamily High Rise program, as long as all other eligibility criteria were met.
00452	**07/01/2015**	**National Program Requirements (Version 3.1, Rev. 05)**	**Clarification**	**Certifying Homes – Shared heating, cooling, & hot water systems**
				Issue: Partners have asked if dwelling units in a multifamily building with 4 units or fewer or with 3 stories or fewer above-grade are eligible to be certified if they share heating, cooling, or water systems.

				Resolution: Dwelling units in any multifamily building with 4 units or fewer, and dwelling units in multifamily buildings with 3 stories or fewer above-grade are eligible to be certified, even if they share heating, cooling, and hot water systems, as long as they meet all program requirements.
00453	**07/01/2015**	**National Program Requirements (Version 3.1, Rev. 05)**	**Change**	**Prescriptive Path - Removal of the Prescriptive Path**
				Issue: There are currently two compliance paths available to partners that lead to certification – the Performance Path and the Prescriptive Path. Each offers unique benefits and constraints, and having two paths was intended to provide partners with added flexibility when certifying homes. However, in practice, 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.
				Resolution: To simplify the program, the Prescriptive Path will be removed in Revision 06. Specifically, homes with a permit date on or after 60 days after the release of Rev. 06 will only be permitted to use the Performance Path, which will be renamed the ENERGY STAR Certification Process. However, to minimize the disruption to partners who might have had Prescriptive Path projects in process at the time Revision 06 was released, homes with a permit date before 09/01/2015 will be permitted to use the modified Prescriptive Path allowance. The modified Prescriptive Path allowance provides a single set of measures that can be used to construct an ENERGY STAR Certified Home. No tradeoffs are allowed. However, under this allowance, modeling is required to ensure that all homes receive a HERS rating. The only purpose of this allowance is to provide an alternative ENERGY STAR HERS Index Target. This alternative target will only be beneficial for homes in which the Prescriptive Path efficiency measures do not produce a HERS index that meets the default ENERGY STAR HERS Index Target. To reflect this change, all references to the Prescriptive Path, and any Footnotes that only reference the Prescriptive Path, will be removed from all program documents. Additionally a new Footnote will be added to the National Program Requirements as follows: "Prior to Rev. 06, 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. 06 shall only use the Performance Path, which has been renamed the ENERGY STAR Certification Process. To minimize disruption to projects that are in process, homes with a permit date before 09/01/2015 are permitted to use a modified version of the Prescriptive Path in lieu of the Performance Path. For more information about this compliance option, visit: www.energystar.gov/v31prescriptivepath." Additionally, a new document that defines the modified Prescriptive Path allowance will be created and available at www.energystar.gov/v31prescriptivepath.

00454	**07/01/2015**	**National Program Requirements (Version 3.1, Rev. 05)**	**Refinement**	**Performance Path and Footnote 9 – Integration of cover page from Inspection Checklists**
				Issue: Partners have provided consistent feedback that the amount of paperwork required to certify a home should be minimized wherever possible.
				Resolution: As part of a larger effort to reduce the amount of paperwork required to certify a home, the cover page of the Inspection Checklists will be deleted and much of the content will be moved to the National 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 will be 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. The only exceptions to this rule are in the Thermal Enclosure System Section of the Rater Field Checklist, where the builder may assume responsibility for verifying a maximum of eight items. This option shall only be used at the discretion of the Rater. When exercised, the builder’s responsibility will be formally acknowledged by the builder signing the checklist for the item(s) that they verified. 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 will be 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 for homes outside California, and the CEC-approved sampling protocol for homes in CA. 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."
00455	**07/25/2011**	**National Program Requirements (Version 3.1, Rev. 05)**	**Clarification**	**Performance Path – Modeling requirements for multifamily buildings**
				Issue: Partners have asked if, under the Performance Path, each unit in a multifamily building must be individually modeled to demonstrate compliance with its ENERGY STAR HERS Index Target. The current program requirements do not clearly state whether this is a requirement.
				Resolution: Each dwelling unit in a multifamily building must be individually modeled to demonstrate compliance with its ENERGY STAR HERS Index Target. EPA is aware of two other approaches that have been used by partners in the past, which will no longer be applicable. The first was to generate a single ENERGY STAR HERS index target using a single model for the entire building. While this approach was never explicitly allowed or encouraged, it was also never prohibited. In the time since this issue was identified, RESNET formed a multifamily high-rise working group to provide recommendations on how the HERS methodology should be applied to this sector. One of the recommendations of the working group was to explicitly prohibit modeling of a multifamily residential building in order to determine the HERS Index for that building or to apply that building-level HERS Index to the dwelling units in that building. The second was to model a subset of dwelling units using a policy developed for Version 2 of the program. This policy was developed primarily to address the challenge that a single set of efficiency measures applied to different dwelling units often results in different HERS index values. Because Version 2 of the program defined a single HERS index target within a climate zone, this variation made it more difficult for partners to select a single set of measures for all multifamily dwelling units. Beginning with Version 3, a dynamic HERS index target is defined for each home. This more easily allows partners to select a single set of measures across all dwelling units. Therefore, the Version 2 policy allowing a subset of dwelling units to be modeled was not intended to be applied to homes certified under v3 and is no longer applicable.

<table>
<tr><td rowspan="3">00456</td><td rowspan="3">07/01/2015</td><td rowspan="3">National Program Requirements (Version 3.1, Rev. 05)</td><td rowspan="3">Refinement</td><td>Exhibit 2: Updated Terminology For Mandatory Requirements</td></tr>
<tr><td>Issue: Partners have provided consistent feedback that the workflow required to certify a home should be improved where possible.</td></tr>
<tr><td>Resolution: As part of a larger effort to improve the workflow required to certify a home, the inspection checklists required to certify a home will, in part, be rearranged and renamed to improve the workflow of the certification process. Exhibit 2 will be updated to reflect the revised program documents and who is responsible for completing each of them, as follows:
<table>
<tr><th>Party Responsible</th><th>Mandatory Requirements</th></tr>
<tr><td>Rater</td><td>• Completion of Rater Design Review Checklist
• Completion of Rater Field Checklist</td></tr>
<tr><td>HVAC System Designer</td><td>• Completion of HVAC Design Report</td></tr>
<tr><td>HVAC Installing Contractor</td><td>• Completion of HVAC Commissioning Checklist</td></tr>
<tr><td>Builder</td><td>• Completion of Water Management System Builder Requirements</td></tr>
</table></td></tr>
<tr><td rowspan="3">00457</td><td rowspan="3">07/01/2015</td><td rowspan="3">National Program Requirements (Version 3.1, Rev. 05)</td><td rowspan="3">Refinement</td><td>Effective Date Section – Addition of Northern Mariana Islands</td></tr>
<tr><td>Issue: The Effective Date Section includes a list of locations for which regional program requirements have been developed. This list does not currently contain locations for which regional program requirements have been developed since the release of Revision 05.</td></tr>
<tr><td>Resolution: To ensure partners do not unknowingly use the National Program Requirements when regional program requirements exist for their region, the list of locations with regional program requirements will be revised to include the Northern Mariana Islands as follows:
“Note that regional program requirements and associated implementation schedules have been developed for homes in CA, FL, GU, HI, the Northern Mariana Islands, PR, and the Pacific Northwest.”</td></tr>
<tr><td rowspan="3">00581</td><td rowspan="3">06/03/2016</td><td rowspan="3">National Program Requirements (Version 3, Rev. 08)</td><td rowspan="3">Comment</td><td>Continued implementation of Version 3 in Alabama</td></tr>
<tr><td>Issue: Partners have questioned whether a Version 3.1 implementation date will be defined in response to the latest version of the Alabama Energy and Residential Code. This code, with an enforcement date of 10/01/2016, incorporates the 2015 IECC with substantive amendments.</td></tr>
<tr><td>Resolution: An analysis was completed to estimate the savings of a Version 3 home relative to the latest version of the Alabama Energy and Residential Code. This analysis yielded a</td></tr>
</table>

				weighted average savings over 10%. Because Version 3 continues to offer meaningful savings in Alabama relative to the latest code, Version 3.1 will not be implemented in Alabama at this time. Version 3.1 will not be implemented in Alabama until another state-level code update occurs or until EPA defines a nationwide implementation date for Version 3.1.
00618	**09/01/2017**	**National Program Requirements (Version 3, Rev. 08)**	**Comment**	**Continued implementation of Version 3 in Utah**
				Issue: Partners have questioned whether a Version 3.1 implementation date will be defined in response to the latest version of Utah's residential building energy code. This code, with an enforcement date of 6/1/2016, incorporates the 2015 IECC with substantive amendments.
				Resolution: An analysis was completed to estimate the savings of a Version 3 home relative to the latest version of Utah's residential building energy code. This analysis yielded a weighted average savings over 10%. Because Version 3 continues to offer meaningful savings in Utah relative to the latest code, Version 3.1 will not be implemented in Utah at this time. Version 3.1 will not be implemented in Utah until another state-level code update occurs or until EPA defines a nationwide implementation date for Version 3.1.
00619	**09/01/2017**	**National Program Requirements (Version 3, Rev. 08)**	**Comment**	**Continued implementation of Version 3 in Ohio**
				Issue: Partners have questioned whether a Version 3.1 implementation date will be defined in response to Ohio's adoption of the 2015 IECC for commercial buildings and a sub-segment of multifamily dwelling units. The multifamily sub-segment that this code applies to is dwelling units in buildings that are 3 stories where this is not an independent means of egress from each unit, as well as units in buildings that are 4 and 5 stories. This code, with an enforcement date of 01/01/2017, incorporates the 2015 IECC with substantive amendments.
				Resolution: An analysis was completed to estimate the savings of a Version 3 dwelling unit in a low-rise multifamily building covered by the Ohio code update relative to a dwelling unit complying with the 2015 IECC. Although this analysis yielded average savings lower than 10% for this sub-segment, the current participants of the program rarely build multifamily units that would be impacted by the new code. In addition, Version 3 continues to offer meaningful savings for single family homes and for multifamily dwelling units not encompassed by the new code. Because of this, and the complexity of attempting to implement two different versions of the program in the same state, Version 3.1 will not be implemented in Ohio at this time. Version 3.1 will not be implemented in Ohio until another state-level code update occurs or until EPA defines a nationwide implementation date for Version 3.1.
00648	**12/13/2017**	**National Program Requirements (Version 3, Rev. 08)**	**Comment**	**Continued implementation of Version 3 in Idaho**
				Issue: Partners have questioned whether a Version 3.1 implementation date will be defined in response to the latest version of Idaho's residential building energy code. This code, with an enforcement date of 1/1/2018, incorporates the 2015 IECC with substantive amendments.

<table>
<tr><td></td><td></td><td></td><td></td><td>Resolution: An analysis was completed to estimate the savings of a Version 3 home relative to the latest version of Idaho’s residential building energy code. This analysis yielded a weighted average savings over 10%. Because Version 3 continues to offer meaningful savings in Idaho relative to the latest code, Version 3.1 will not be implemented in Idaho at this time. Version 3.1 will not be implemented in Idaho until another state-level code update occurs or until EPA defines a nationwide implementation date for Version 3.1.</td></tr>
<tr><td rowspan="3">00582</td><td rowspan="3">06/03/2016</td><td rowspan="3">National Program Requirements (Version 3.1, Rev. 08)</td><td rowspan="3">Change</td><td>Implementation Date for MI and NY</td></tr>
<tr><td>Issue: Michigan and New York have recently adopted more efficient residential energy codes. As a result, once the new codes are fully implemented, Version 3 of the National Program Requirements will no longer provide meaningful savings relative to code-compliant non-certified homes in these states.</td></tr>
<tr><td>Resolution: To continue to provide meaningful savings relative to non-certified homes in states that have adopted more rigorous codes, a Version 3.1 implementation date has been defined for Michigan and New York. To reflect this change, Exhibit 4 will be modified as follows:
<table>
<tr><th>State</th><th>Applicable to Homes with the Following Permit Date</th></tr>
<tr><td>MA</td><td>On or after 01/01/2015</td></tr>
<tr><td>DC, IL, MD, RI</td><td>On or after 04/01/2015 (except for Calvert County and St. Mary’s County in MD, for which the applicable permit date is on or after 07/01/02015).</td></tr>
<tr><td>IA</td><td>On or after 06/01/2015</td></tr>
<tr><td>DE</td><td>On or after 12/01/2015</td></tr>
<tr><td>MT, OR, WA</td><td>On or after 01/01/2016</td></tr>
<tr><td>MN, VT</td><td>On or after 04/01/2016</td></tr>
<tr><td>NV</td><td>On or after 07/01/2016</td></tr>
<tr><td>MI, NJ</td><td>On or after 04/01/2017</td></tr>
<tr><td>NY, TX</td><td>On or after 10/01/2017</td></tr>
</table></td></tr>
<tr><td rowspan="2">00601</td><td rowspan="2">10/01/2016</td><td rowspan="2">National Program Requirements</td><td rowspan="2">Change</td><td>Implementation Date for CT</td></tr>
<tr><td>Issue: Connecticut has recently adopted a more efficient residential energy code. As a result, once the new code is fully implemented, Version 3 of the National Program Requirements will</td></tr>
</table>

		(Version 3.1, Rev. 08)		no longer provide meaningful savings relative to code-compliant non-certified homes in this state.
				Resolution: To continue to provide meaningful savings relative to non-certified homes in states that have adopted more rigorous codes, a Version 3.1 implementation date has been defined for Connecticut. To reflect this change, Exhibit 4 will be modified as follows:

State	Applicable to Homes with the Following Permit Date
MA	On or after 01/01/2015
DC, IL, MD, RI	On or after 04/01/2015 (except for Calvert County and St. Mary's County in MD, for which the applicable permit date is on or after 07/01/02015).
IA	On or after 06/01/2015
DE	On or after 12/01/2015
MT, OR, WA	On or after 01/01/2016
MN, VT	On or after 04/01/2016
NV	On or after 07/01/2016
MI, NJ	On or after 04/01/2017
CT, NY, TX	On or after 10/01/2017

00781	**09/01/2018**	**National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Exhibit 4 - Continued Use of Rev. 08 HVAC Design Report**
				Issue: Partners have noted that the HVAC Design Report is only required to be collected once per system design, even if multiple homes are built using this design. Due to the effort required to collect the HVAC Design Report, they have asked whether previously collected Rev. 08 documentation can continue to be used after the release of the next Revision of the program requirements, so long as no aspect of the system design changes.
				Resolution: Because the next Revision of the HVAC Design Report will not require collection of any additional information or impose any new requirements, and will maintain or increase compliance tolerances, a design documented using Rev. 08 of the HVAC Design Report would, by definition, meet the requirements of the next Revision. Therefore, previously collected Rev. 08 HVAC Design Reports will be permitted to be used after the release of the next Revision of the program requirements, so long as the no aspect of the system design changes. To reflect this change, a new Footnote will be added to Exhibit 4, as follows: "Homes

				certified under Rev. 09 of the program requirements are permitted to use either Rev. 08 or 09 of the National HVAC Design Report.”
00687	**09/01/2018**	**National Program Requirements (Version 3, Rev. 08)**	**Change**	**Elimination of plant-certification pathway for modular homes**
				Issue: Currently, there are two paths for modular homes to earn ENERGY STAR certification: • A Rater-verification path, where a Rater is responsible for verifying all program requirements. This may require the Rater to complete inspections in the plant for features that are concealed prior to shipment, as well as complete inspections on-site. • A plant-certification path, where a Quality Assurance Provider (QAP) certifies that the plant has processes in place to consistently incorporate ENERGY STAR requirements into their production. In this path, the plant is responsible for the verification of some items, while a Rater is responsible for completing the verification process on-site. The existence of two pathways increases the complexity of the program. Furthermore, in the case of the plant-certification path, the division of verification responsibilities between two different parties has occasionally created confusion. EPA evaluated the use of the plant-certification path by partners, and found that only 36 homes were certified by three plants using this path in 2016. Upon conducting outreach with these three partners, none felt strongly about maintaining this path.
				Resolution: The plant-certification path for modular homes will be eliminated because it is not frequently utilized and may be causing confusion among partners. To further clarify the remaining certification process for modular homes, the Eligibility Requirements section will be updated to explicitly encompass modular homes and the ENERGY STAR Certification Process section will be updated to indicate that 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, the Version of the program requirements applicable to a modular home, which is currently based upon the home’s “sale date”, will be changed to be based upon the “permit date”, to align with the policy for other site-built homes. To reflect these changes, the first line of the “Eligibility Requirements” section will be revised as follows: “The following site-built or modular homes are eligible to earn the ENERGY STAR:” The following sentence will be added to Step 4 of the ENERGY STAR Certification Process section: “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.” And a new Footnote, Footnote 1, will be added that reads as follows:

				"A modular home is a prefabricated home that is made of multiple modules or sections that are manufactured and substantially assembled in a manufacturing plant. These pre–built sections are transported to the building site and constructed by a builder to meet all applicable building codes for site–built homes."
00691	**09/01/2018**	**National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Elimination of plant-certification pathway for modular homes**
				Issue: Currently, there are two paths for modular homes to earn ENERGY STAR certification: • A Rater-verification path, where a Rater is responsible for verifying all program requirements. This may require the Rater to complete inspections in the plant for features that are concealed prior to shipment, as well as complete inspections on-site. • A plant-certification path, where a Quality Assurance Provider (QAP) certifies that the plant has processes in place to consistently incorporate ENERGY STAR requirements into their production. In this path, the plant is responsible for the verification of some items, while a Rater is responsible for completing the verification process on-site. The existence of two pathways increases the complexity of the program. Furthermore, in the case of the plant-certification path, the division of verification responsibilities between two different parties has occasionally created confusion. EPA evaluated the use of the plant-certification path by partners, and found that only 36 homes were certified by three plants using this path in 2016. Upon conducting outreach with these three partners, none felt strongly about maintaining this path.
				Resolution: The plant-certification path for modular homes will be eliminated because it is not frequently utilized and may be causing confusion among partners. To further clarify the remaining certification process for modular homes, the Eligibility Requirements section will be updated to explicitly encompass modular homes and the ENERGY STAR Certification Process section will be updated to indicate that 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, the Version of the program requirements applicable to a modular home, which is currently based upon the home's "sale date", will be changed to be based upon the "permit date", to align with the policy for other site-built homes. To reflect these changes, the first line of the "Eligibility Requirements" section will be revised as follows: "The following site-built or modular homes are eligible to earn the ENERGY STAR:" The following sentence will be added to Step 4 of the ENERGY STAR Certification Process section:

				"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." And a new Footnote, Footnote 1, will be added that reads as follows: "A modular home is a prefabricated home that is made of multiple modules or sections that are manufactured and substantially assembled in a manufacturing plant. These pre–built sections are transported to the building site and constructed by a builder to meet all applicable building codes for site–built homes."
00603	**02/23/2017**	**National Program Requirements (Version 3, Rev. 08)**	**Change**	**Eligibility Requirements - Criteria for dwelling units in four and five story buildings**
				Issue: Partners have indicated that the eligibility requirements for dwelling units in four and five story buildings sometimes cause unintended challenges. Currently, dwelling units with their own heating, cooling, and hot water systems are generally required to be certified using the ENERGY STAR certified homes program, while units with shared systems must be certified using the ENERGY STAR Multifamily High-Rise program. Because the requirements are substantially different between the two programs, and the decision to use individual or shared systems is sometimes beyond the control of the design team, including the system type in the eligibility requirements is causing the unintended challenges. Dwelling units with shared systems were initially excluded due to a lack of modeling guidance readily available to Raters. With the availability of RESNET's Guidelines for Multifamily Ratings, modeling guidance is now available to address the most common central heating, cooling and hot water systems used in multifamily buildings.
				Resolution: To address the challenges that partners are experiencing with the current eligibility requirements, the criteria related to heating, cooling, and hot water systems will be removed from the national program requirements. The eligibility requirement in the fourth bullet of the Eligibility Requirements section will be revised to state: "Dwelling units in multifamily buildings with 4 or 5 stories above-grade where dwelling units occupy 80% or more of the occupiable square footage of the building[4,5]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met." Footnote 4 will be revised to state: "These units may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program. If participating in the Certified Homes Program and the dwelling unit is served by a central heating, cooling, or hot water system, use of the RESNET Guidelines for Multifamily Ratings for modeling the specified central system(s) is recommended." Footnote 5 will be revised to state: "If permitted prior to July 1, 2012, units in multifamily buildings with 4 or 5 stories above-grade may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program, without assessing whether the 80% threshold has been met."

00605	**02/23/2017**	**National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Eligibility Requirements: Criteria for dwelling units in four and five story buildings**
				Issue: Partners have indicated that the eligibility requirements for dwelling units in four and five story buildings sometimes cause unintended challenges. Currently, dwelling units with their own heating, cooling, and hot water systems are generally required to be certified using the ENERGY STAR certified homes program, while units with shared systems must be certified using the ENERGY STAR Multifamily High-Rise program. Because the requirements are substantially different between the two programs, and the decision to use individual or shared systems is sometimes beyond the control of the design team, including the system type in the eligibility requirements is causing the unintended challenges. Dwelling units with shared systems were initially excluded due to a lack of modeling guidance readily available to ENERGY STAR Raters. With the availability of RESNET's Guidelines for Multifamily Ratings, modeling guidance is now available to address the most common central heating, cooling and hot water systems used in multifamily buildings.
				Resolution: To address the challenges that partners are experiencing with the current eligibility requirements, the criteria related to heating, cooling, and hot water systems will be removed from the national program requirements. The eligibility requirement in the fourth bullet of the Eligibility Requirements section will be revised to state: "Dwelling units in multifamily buildings with 4 or 5 stories above-grade where dwelling units occupy 80% or more of the occupiable square footage of the building. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met." Footnote 4 will be revised to state: "These units may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program. If participating in the Certified Homes Program and the dwelling unit is served by a central heating, cooling, or hot water system, use of the RESNET Guidelines for Multifamily Ratings for modeling the specified central system(s) is recommended." Footnote 5 will be revised to state: "If permitted prior to July 1, 2012, units in multifamily buildings with 4 or 5 stories above-grade may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program, without assessing whether the 80% threshold has been met."
00604	**02/23/2017**	**National Program Requirements (Version 3, Rev. 08)**	**Change**	**Determining stories in multifamily buildings with partial floors**
				Issue: Partners have asked whether partial floors in multifamily buildings (e.g., a penthouse, a loft, or a mezzanine) contribute to the total number of stories for the purposes of determining eligibility to participate in the program.
				Resolution: Not all partial floors in multifamily buildings should contribute to the total number of stories for the purposes of determining eligibility to participate in the program.

				First, consistent with the 2012 IRC, a loft or mezzanine is defined as an intermediate level or levels between the floor and ceiling of any story with an aggregate floor area of not more than one-third of the area of the room or space in which the level or levels are located. When determining the number of stories of a multifamily building, a partial floor that meets the definition of a loft or mezzanine shall not count as a story. For example, if the lower floor area of a dwelling unit is 100 sq. ft. and a partial second floor is 25 sq. ft., then the partial second floor is 20% of the total floor area of the dwelling unit (25/125 = 20%). Because 20% is less than 33%, the partial second floor is considered a loft or mezzanine and does not count as a story.
00606	**02/23/2017**	**National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Determining stories in multifamily buildings with partial floors**
				Issue: Partners have asked whether partial floors in multifamily buildings (e.g., a penthouse, a loft, or a mezzanine) contribute to the total number of stories for the purposes of determining eligibility to participate in the program.
				Resolution: Not all partial floors in multifamily buildings should contribute to the total number of stories for the purposes of determining eligibility to participate in the program. First, consistent with the 2012 IRC, a loft or mezzanine is defined as an intermediate level or levels between the floor and ceiling of any story with an aggregate floor area of not more than one-third of the area of the room or space in which the level or levels are located. When determining the number of stories of a multifamily building, a partial floor that meets the definition of a loft or mezzanine shall not count as a story. For example, if the lower floor area of a dwelling unit is 100 sq. ft. and a partial second floor is 25 sq. ft., then the partial second floor is 20% of the total floor area of the dwelling unit (25/125 = 20%). Because 20% is less than 33%, the partial second floor is considered a loft or mezzanine and does not count as a story.
00688	**09/01/2018**	**National Program Requirements (Version 3, Rev. 08)**	**Clarification**	**Explicit requirement for homes to be registered and receive rating**
				Issue: While implied, there is currently no language in the ENERGY STAR Certification Process section that explicitly requires partners to register homes with an EPA-approved Verification Oversight Organization (VOO) such as RESNET. This step is critical to ensure that the home is encompassed by the quality assurance protocols defined by that VOO.
				Resolution: In order to ensure that ENERGY STAR certified homes are encompassed by a VOO's quality assurance protocols, ENERGY STAR Certified Homes will be explicitly required to receive a rating and be registered with an EPA-approved VOO. The first paragraph under Step 4 of the ENERGY STAR Certification Process will be updated as follows: "4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with the on-site inspection procedures for minimum

				rated features of an EPA-Approved VOO. Finally, register the rated home with the same EPA-Approved VOO. The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC Design Report.”
00692	**09/01/2018**	**National Program Requirements (Version 3.1, Rev. 08)**	**Clarification**	**Explicit requirement for homes to be registered and receive rating**
				Issue: While implied, there is currently no language in the ENERGY STAR Certification Process section that explicitly requires partners to register homes with an EPA-approved Verification Oversight Organization (VOO) such as RESNET. This step is critical to ensure that the home is encompassed by the quality assurance protocols defined by that VOO.
				Resolution: In order to ensure that ENERGY STAR certified homes are encompassed by a VOO’s quality assurance protocols, ENERGY STAR Certified Homes will be explicitly required to receive a rating and be registered with an EPA-approved VOO. The first paragraph under Step 4 of the ENERGY STAR Certification Process will be updated as follows: “4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with the on-site inspection procedures for minimum rated features of an EPA-Approved VOO. Finally, register the rated home with the same EPA-Approved VOO. The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC Design Report.”
00690	**09/01/2018**	**National Program Requirements (Version 3, Rev. 08)**	**Refinement**	**Effective Date Section – Revised structure and format of Implementation Timeline**
				Issue: The Effective Date Section varies in structure across program requirements, creating potential confusion. In addition, the implementation timeline information contained within the Exhibit in this Section does not consistently document prior and future Versions of the program, and does not currently incorporate the implementation timelines of both Versions and Revisions.
				Resolution: To help ensure partners are aware of the implementation timeline(s) applicable to the homes that they certify, the Effective Date section will be revised to make the overall structure consistent. Furthermore, the Exhibit containing the implementation timelines will be revised to include the Version(s) and Revision(s) that was applicable for the two years prior to the date of publication, as well as all future Versions and Revisions that are applicable to each location. With this refinement to the Exhibit, the first sentence of Footnote 11 will be removed as the revised Implementation Timeline contains this information. These refinements will be reflected as follows: “**Effective Date** To determine the program Version and Revision that a home is required to be certified under, look up the location and permit date of the home in Exhibit 4. Note that the National Version 3.1 program requirements are being implemented in states that have adopted the 2012, 2015, or 2018 IECC, or an equivalent code. Note, as well, that regional program requirements, and

associated implementation timelines, have been developed for homes in CA, FL, GU, HI, the Northern Mariana Islands, OR, PR, and WA. The National Version 3.1 and regional program requirements can be found at www.energystar.gov/newhomesrequirements.

This Exhibit contains all implementation timelines applicable on or after September 1, 2016. Implementation timelines applicable prior to this date can be obtained by contacting energystarhomes@energystar.gov."

Exhibit 4: ENERGY STAR Certified Homes Implementation Timeline

State / Territory	Homes Permitted On or After This Date Must Meet the Adjacent Version & Revision	Version	Revision
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	07-01-2016	National v3	Rev. 08
	01-01-2019	National v3	Rev. 09
DC, DE, IA, IL, MA, MD, MN, MT, RI, VT	07-01-2016	National v3.1	Rev. 08
	01-01-2019	National v3.1	Rev. 09
NV	07-01-2016	National v3	Rev. 08
	10-01-2016	National v3.1	Rev. 08
	01-01-2019	National v3.1	Rev. 09
MI, NJ	07-01-2016	National v3	Rev. 08
	04-01-2017	National v3.1	Rev. 08
	01-01-2019	National v3.1	Rev. 09
CT, NY	07-01-2016	National v3	Rev. 08
	10-01-2017	National v3.1	Rev. 08
	01-01-2019	National v3.1	Rev. 09

					TX	07-01-2016	National v3	Rev. 08
						07-01-2018	National v3.1	Rev. 08
						01-01-2019	National v3.1	Rev. 09
00694	**09/01/2018**	**National Program Requirements (Version 3.1, Rev. 08)**	**Refinement**	**Effective Date Section – Revised structure and format of Implementation Timeline**				

Issue: The Effective Date Section varies in structure across program requirements, creating potential confusion. In addition, the implementation timeline information contained within the Exhibit in this Section does not consistently document prior and future Versions of the program, and does not currently incorporate the implementation timelines of both Versions and Revisions

Resolution: To help ensure partners are aware of the implementation timeline(s) applicable to the homes that they certify, the Effective Date section will be revised to make the overall structure consistent. Furthermore, the Exhibit containing the implementation timelines will be revised to include the Version(s) and Revision(s) that was applicable for the two years prior to the date of publication, as well as all future Versions and Revisions that are applicable to each location. With this refinement to the Exhibit, the first sentence of Footnote 11 will be removed as the revised Implementation Timeline contains this information. These refinements will be reflected as follows:

Effective Date

To determine the program Version and Revision that a home is required to be certified under, look up the location and permit date of the home in Exhibit 4. Note that the National Version 3 program requirements are being implemented in states that have not adopted the 2012, 2015, or 2018 IECC, or an equivalent code. Note, as well, that regional program requirements, and associated implementation timelines, have been developed for homes in CA, FL, GU, HI, the Northern Mariana Islands, OR, PR, and WA. The National Version 3 and regional program requirements can be found at www.energystar.gov/newhomesrequirements.

This Exhibit contains all implementation timelines applicable on or after September 1, 2016. Implementation timelines applicable prior to this date can be obtained by contacting energystarhomes@energystar.gov.

Exhibit 4: ENERGY STAR Certified Homes Implementation Timeline

State / Territory	Homes Permitted On or After This Date Must Meet the Adjacent Version & Revision	Version	Revision

				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	07-01-2016	National v3	Rev. 08
					01-01-2019	National v3	Rev. 09
				DC, DE, IA, IL, MA, MD, MN, MT, RI, VT	07-01-2016	National v3.1	Rev. 08
					01-01-2019	National v3.1	Rev. 09
				NV	07-01-2016	National v3	Rev. 08
					10-01-2016	National v3.1	Rev. 08
					01-01-2019	National v3.1	Rev. 09
				MI, NJ	07-01-2016	National v3	Rev. 08
					04-01-2017	National v3.1	Rev. 08
					01-01-2019	National v3.1	Rev. 09
				CT, NY	07-01-2016	National v3	Rev. 08
					10-01-2017	National v3.1	Rev. 08
					01-01-2019	National v3.1	Rev. 09
				TX	07-01-2016	National v3	Rev. 08
					07-01-2018	National v3.1	Rev. 08
					01-01-2019	National v3.1	Rev. 09
				WA	07-01-2016	National v3.1	Rev. 08
					07-01-2018	Oregon and Washington v3.2	Rev. 08
					01-01-2019	Oregon and Washington v3.2	Rev. 09

				OR	07-01-2016	National v3.1	Rev. 08
					01-01-2019	National v3.1	Rev. 09
					04-01-2019	Oregon and Washington v3.2	Rev. 09
00623	**09/01/2017**	**National Program Requirements (Version 3.1, Rev. 08)**	**Refinement**	**Effective Date – Implementation of Version 3.1 when 2015 IECC is adopted**			
				Issue: Policy Record Entry 00694 contains the most recent resolution of this issue. This issue (ID 00623) is only being retained to maintain a complete Policy Record. The Effective Date section states in part that the Version 3.1 Program Requirements will be implemented in states that have implemented the 2012 IECC or equivalent. This section fails to mention that a Version 3.1 implementation date may be defined for states that have implemented the 2015 IECC.			
				Resolution: Policy Record Entry 00694 contains the most recent resolution of this issue. This issue (ID 00623) is only being retained to maintain a complete Policy Record. To reflect the fact that EPA intends to implement the Version 3.1 program requirements in states that have adopted the 2012 IECC, 2015 IECC, or equivalent code, the first sentence under the Effective Date Section will be updated to read: "EPA intends to implement the Version 3.1 program requirements for homes permitted starting one year after state-level implementation of the 2012 IECC, 2015 IECC, or an equivalent code".			
00621	**09/01/2017**	**National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Elimination of Size Adjustment Factor for HERS Index Target Calculation**			
				Issue: Partners in Texas have expressed difficulty meeting the Version 3.1 ENERGY STAR HERS Index Target for Climate Zone 3, particularly for homes impacted the Size Adjustment Factor (SAF). The Version 3.1 ENERGY STAR HERS Index Targets in Climate Zone 3 are already among the most aggressive, even for homes not impacted by the SAF. While Partners indicated that a minority of homes are impacted by the SAF, for those that are impacted, Partners have expressed that few additional cost-effective measures are available at this time to compensate for the SAF.			
				Resolution: In order to address the challenges Partners have had in meeting the ENERGY STAR HERS Index Target, while not significantly impacting energy savings, the SAF will be removed from the HERS Index Target Procedure. As a result, Exhibit 3: Benchmark Home and the associated Footnote 9 will be removed. Additionally, because of the removal of the SAF, the last sentence of Step 2 of the ENERGY STAR Certification Process, which reads "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 the ENERGY STAR HERS Index			

				Target caused by the Size Adjustment Factor", is no longer relevant and will therefore will be modified to say "Furthermore, on-site power generation may not be used to meet the ENERGY STAR HERS Index Target."
00458	**07/01/2015**	**Inspection Checklists (Version 3, Rev. 07)**	**Refinement**	**Cover Page – Relocation of content**
				Issue: Partners have provided consistent feedback that the amount of paperwork required to certify a home should be minimized wherever possible.
				Resolution: As part of a larger effort to reduce the amount of paperwork required to certify a home, the cover page of the Inspection Checklists will be deleted and much of the content will be moved to the National 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 will be moved from the cover page of the Inspection Checklists to Step 4 of the Performance Path of the National Program Requirements: "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. The only exceptions to this rule are in the Thermal Enclosure System Section of the Rater Field Checklist, where the builder may assume responsibility for verifying a maximum of eight items. This option shall only be used at the discretion of the Rater. When exercised, the builder's responsibility will be formally acknowledged by the builder signing the checklist for the item(s) that they verified. 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 requirements." Additionally, the following language about Rater sampling protocols will be moved from the cover page of the Inspection Checklists to Footnote 9 of the National Program Requirements: "Raters who operate under a Sampling Provider are permitted to verify any item designated "Rater Verified" using the RESNET-approved sampling protocol for homes located outside California, and the CEC-approved sampling protocol for homes located in CA. 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."
00311	**06/01/2013**	**Inspection Checklists (Version 3, Rev. 06)**	**Refinement**	**First Page of Each Checklist - Addition of zip code field**
				Issue: Partners have requested that a field be added for the home's zip code at the top of the first page of each of the four inspection checklists.
				Resolution: A field will be added to the top of the first page of each of the four checklists to record the home's zip code, for Raters to use if they so desire.
00312	**06/01/2013**	**Inspection Checklists (Version 3, Rev. 06)**	**Comment**	**Cover Page – Using HERS software programs to verify compliance with Checklist Items**
				Issue: The cover page of the inspection checklists indicates that one requirement for certification is that a home must meet the requirements of the four inspection checklists. Partners have asked if HERS software programs can be used by Raters to ensure compliance with Checklist Items.
				Resolution: HERS software programs may assess compliance with limited Checklist Items, such as the selection of minimum-allowed insulation levels, but none are capable of determining compliance with most of the Checklist Items (e.g., mandatory requirements that require visual inspection). It is the responsibility of the Rater, and not the software, to ensure that each Checklist Item has been verified. The Rater should not presume that a HERS software program has assessed compliance with any Checklist Item unless they receive explicit confirmation from the software provider.
00313	**06/01/2013**	**Inspection Checklists (Version 3, Rev. 06)**	**Change**	**Cover Page & Footnote 1 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu

				of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from the cover page of the Inspection Checklists as will Footnote 1, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00015	**07/25/2011**	**Inspection Checklists (Version 3, Rev. 03)**	**Clarification**	**Verification by Rating Field Inspectors**
				Issue: Partners have asked if Rating Field Inspectors are permitted to verify items on the Inspection Checklists and, if so, whether there are any restrictions on the items that they can verify.
				Resolution: Rating Field Inspectors are allowed to verify any item on the ENERGY STAR Inspection Checklists that Raters are allowed to verify. Through RESNET, Home Energy Raters and Rating Field Inspectors receive equivalent training with regards to field inspections. Therefore, they are both qualified to verify items on the Inspection Checklists. Footnote 2 of the Inspection Checklist cover page will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. This party may be a certified Home Energy Rater, a certified Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET."
00190	**06/27/2012**	**Inspection Checklists (Version 3, Rev. 05)**	**Clarification**	**Cover Page - Sampling protocol**
				Issue: Partners have asked for clarification on three issues related to sampling. First, partners have asked if Raters are required to work under an accredited Sampling Provider in order to conduct sampling. EPA's guidance on the use of sampling on the first page of the Inspection Checklists does not explicitly address this issue. Second, partners in California have noted that the Residential Appendix to the California HERS Standards 2.6.2, "HERS Procedures – Group Sample Field Verification and Diagnostic Testing," defines the sampling protocol recognized by the On-Site Inspection Procedures for California HERS Ratings. The ENERGY STAR Version 3 Program Requirements for the State of California stipulates that this standard must be followed. Therefore, for homes in CA there is an inadvertent conflict between the requirement to use the On-Site Inspection Procedures for California HERS Ratings and the requirement to use a RESNET-approved sampling protocol. Third, partners have asked if a Rater can use a sampling protocol to verify items on the Water Management System Builder Checklist. Currently, EPA only allows sampling for the Thermal

				Enclosure System Rater Checklist and the HVAC System Quality Installation Rater Checklist. Partners have noted that Raters who complete parts of the Water Management System Builder Checklist would still be subject to standards for performing sampling and to oversight through Provider QA. Partners believe that these are adequate assurances that Rater-verified items can be sampled with a high level of confidence in the integrity of the rating.
				Resolution: First, EPA will clarify that Raters are in fact required to work under an accredited Sampling Provider in order to conduct sampling. Second, where Raters are required to operate under RESNET-accredited Providers, they shall use the RESNET-approved sampling protocol when sampling is used. Where Raters are required to operate under California Energy Commission-recognized Providers, they shall use the CEC-approved sampling protocol when sampling is used. Third, EPA will clarify that Raters working under an accredited Sampling Provider may use the applicable (either RESNET or California Energy Commission) sampling protocol to verify any inspection checklist item that may be designated “Rater Verified”. Therefore, Raters are permitted to use sampling to verify items on the Thermal Enclosure System Rater Checklist, the HVAC System Quality Installation Rater Checklist, and the Water Management System Builder Checklist. No parties other than Raters shall use sampling. No items on the HVAC System QI Contractor Checklist are permitted to be verified using a sampling protocol because they may only be designated as “Builder Verified” or “Contractor Verified”. Even if a Rater is hired as a subcontractor by a builder or contractor to verify items on the HVAC System Quality Installation Contractor Checklist, the Rater shall not use sampling. The first page of the National Version 3 Inspection Checklists and the Hawaii Version 3 Inspection Checklists will be revised to: “Raters who operate under a Sampling Provider are permitted to use the RESNET-approved sampling protocol for homes located outside California, and the CEC-approved sampling protocol for homes located in CA, to verify any item designated “Rater Verified”. 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 QI Contractor Checklist are permitted to be verified using a sampling protocol because they may only be designated as “Builder Verified” or “Contractor Verified”. As another example, if a Rater verifies 10 items on the Water Management System Builder Checklist and the builder verifies the remaining checklist items, then the applicable (either RESNET or CEC) sampling protocol is permitted to be used only on the 10 Rater-verified items.”
00106	**01/15/2012**	**Inspection Checklists (Version 3, Rev. 04)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the

				home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. The first page of the Inspection Checklists describes how conflicts with code requirements or other guidance are to be handled and will be revised to ensure consistent implementation among partners. The revised guidance will read: "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. Qualification shall only 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). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target (or equivalent target for regional program requirements). Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00016	**07/25/2011**	**Inspection Checklists (Version 3, Rev. 03)**	**Change**	**Sampling verification of Inspection Checklists**
				Issue: Partners have asked EPA to clarify how the HVAC System Quality Installation Contractor Checklist and Water Management System Builder Checklist can be sampled using a RESNET-approved protocol given that RESNET does not provide oversight of builders or HVAC contractors.
				Response: EPA will revise the first page of the Inspection Checklists to require that the HVAC System Quality Installation Contractor Checklist and Water Management System Builder Checklist be completed for each qualified home. EPA will make this change for several reasons.

				First, there is no effective oversight protocol or infrastructure available to provide sampling of these checklists. RESNET does not provide oversight to the work of builders or HVAC contractors. Second, sampling was conceived as a means to streamline the process by which Raters verify that program requirements have been completed by the builder. That is to say, all homes must meet the program requirements, but verification of compliance is not required for every home if the sampling prerequisites have been met. In contrast, with the HVAC System Quality Installation Contractor Checklist and Water Management System Builder Checklist, the person completing the work is permitted to be the same person verifying the work. For example, the HVAC technician that is installing and commissioning a split system AC unit is permitted to complete the relevant portions of the HVAC System Quality Installation Contractor Checklist. The same logic extends to the builder checklist. Therefore, no additional site visits should be required to complete these two Inspection Checklists. In fact, they can be completed by the person doing the work at the time that the work is done. For these two reasons, EPA will be removing the allowance to use a RESNET-approved sampling protocol to complete the HVAC System Quality Installation Contractor Checklist and Water Management System Builder Checklist. Sampling shall still be permitted for the Thermal Enclosure System Rater Checklist and for the HVAC System Quality Installation Rater Checklist. The description of the use of sampling on the first page of the Inspection Checklists will be revised as follows: “The Thermal Enclosure System Rater Checklist and the HVAC System Quality Installation Rater Checklist shall be permitted to be completed for a batch of homes using a RESNET-approved sampling protocol to qualify homes as ENERGY STAR. For example, if the approved sampling protocol requires rating one in seven homes, then these two checklists shall be permitted to be completed for the one required rating. Sampling shall not be used for the HVAC System Quality Installation Contractor Checklist or the Water Management System Builder Checklist. Instead, these two checklists must be completed for each qualified home.”
00107	**01/15/2012**	**Inspection Checklists (Version 3, Rev. 04)**	**Comment**	**Definition of Applicable Sampling Protocol**
				Issue: Partners have asked if Chapter 6 of RESNET’s Mortgage Industry National Home Energy Rating System Standards still defines the protocols that must be followed to qualify homes through sampling under Version 3.
				Resolution: The sampling protocols described in Chapter 6 of RESNET’s Mortgage Industry National Home Energy Rating System Standards must be followed if sampling is used to qualify homes. Note that the use of sampling is not permitted for the HVAC System Quality Installation Contractor Checklist or the Water Management System Builder Checklist.

00108	**01/15/2012**	**Inspection Checklists (Version 3, Rev. 04)**	**Clarification**	**Verifying HVAC contractor credentials**
				Issue: Partners have asked how Raters can verify that an HVAC contractor holds credentials necessary to complete the HVAC System Quality Installation Contractor Checklist, per the requirement on page 1 of the Inspection Checklists.
				Resolution: Raters can verify the credentialed status of an HVAC contractor using the EPA-maintained list of recognized HVAC credentialing organizations at www.energystar.gov/newhomeshvac. A new footnote will be added to the Inspection Checklists that reads: "HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this credentialing process and links to H-QUITOs, which maintain lists of credentialed contractors, can be found at www.energystar.gov/newhomesHVAC."
00200	**09/10/2012**	**Inspection Checklists (Version 3, Rev. 05)**	**Clarification**	**Footnote 2 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 2, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 2 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. 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."
00459	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Rater retains primary responsibility for builder-verified Items**
				Issue: Footnote 1 states that, at the discretion of the Rater, the builder may verify up to eight Items specified in this Checklist. Given that this flexibility is only permitted to be used at the discretion of the Rater, partners have asked whether it is the builder or the Rater that is primarily responsible for builder-verified Items.
				Resolution: In cases where the builder verifies Items, the builder is acting at the Rater's discretion, essentially as a field agent of the Rater. Therefore, the Rater is ultimately responsible for ensuring that such Items have been successfully verified. That is to say, if a quality assurance review indicates that Items have not been successfully completed, the Rater will be responsible for facilitating corrective action.

				With this in mind, the value of builder-verified Items is that it may result in fewer trips that the Rater must make to the home prior to certification. However, a Rater should only exercise this option at their discretion and must be confident that the builder can accurately verify such Items. EPA recommends that Raters train builders, conduct spot-checks, and consider collecting documentation (e.g., photos) when builder verification occurs. Footnote 1 will be revised as follows to clarify this intent: "At the discretion of the Rater, the builder may verify up to eight items in Sections 1-4 of this Checklist. When exercised, the builder's responsibility will be formally acknowledged by the builder signing off on the checklist for the item(s) that they verified. However, if a quality assurance review indicates that Items have not been successfully completed, the Rater will be responsible for facilitating corrective action."
00460	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Transition to Rater Design Review Checklist and Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the Thermal Enclosure System Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: 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 will migrate to two new program documents - the Rater Design Review Checklist and the Rater Field Checklist. The Rater Design Review Checklist will contain the Items from the Thermal Enclosure System Rater Checklist that can be completed at the design stage, prior to the start of construction, and the Rater Field Checklist will contain the Items that must be completed in the field. Detailed modifications to Items, Sections, and Footnotes are described in the entries below along with a description of their new location on the Rater Design Review Checklist and the Rater Field Checklist.
00018	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 1 – Applicability of requirements to historic buildings**
				Issue: Partners have asked if historic buildings being renovated must comply with Items 1.1 and 1.2 or if exceptions will be made similar to those in Item 101.4.2 of the 2009 IECC.
				Resolution: Historically, EPA has allowed retrofit projects to earn the ENERGY STAR if all requirements have been met. This policy has not changed. Retrofits must meet all requirements of the guidelines to earn the ENERGY STAR.
00461	**07/01/2015**		**Change**	**Section 1 – Allowance for PHIUS+ certified homes to use triple-glazed windows**

		Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)		**Issue:** All Passive House (PHIUS+) certified homes are required to also meet DOE's Challenge Home program requirements and, by extension, EPA's ENERGY STAR Certified Homes program requirements. Partners have asked whether windows that have no NFRC rating, but that are triple-glazed and have thermal breaks/spacers between the panes, can be used to satisfy the requirements of Section 1. DOE's Challenge Home program provides a similar exemption.
				Resolution: In recognition of the generally high performance of triple-glazed windows with thermal breaks / spacers relative to the minimum requirements of the ENERGY STAR Certified Homes program, an alternative compliance option will be added that allows Passive House (PHIUS+) certified homes with such windows to meet Section 1. To reflect this alternative compliance option for homes certified under the Performance Path, the following sentence will be added at the end of Footnote 2: "In Passive House (PHIUS+) certified homes, where triple-glazed window assemblies with thermal breaks/spacers between the panes are used, such windows meet the intent of Item 1.2 and shall be excluded when assessing compliance with a) through e), above."
00462	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Section 1 – Transition to Section 2 of the Rater Design Review Checklist and Section 1 of the Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the Thermal Enclosure System Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: As part of an overall transition from the Thermal Enclosure System Rater Checklist to the Rater Design Review Checklist and Rater Field Checklist, Item 1.2 will be moved to Item 2.1 of the Rater Design Review Checklist and Item 1.1 of the Rater Field Checklist. Item 1.1 from this checklist will be removed due to the elimination of the Prescriptive Path. The overall intent of these new Items will not change. However, Item 2.1 of the Rater Design Review Checklist will reflect that this Item is to be completed prior to construction, based upon the design, and Item 1.1 of the Rater Field Checklist will reflect that this Item is to be completed in the field, after construction, and should reflect the fenestration specified during the design stage. Item 2.1 of the Rater Design Review Checklist will read as follows: 2.1: "Specified fenestration meets or exceeds 2009 IECC requirements" Item 1.1 of the Rater Field Checklist will read as follows:

				1.1: “Fenestration meets or exceeds levels specified in Item 2.1 of the Rater Design Review Checklist”
00109	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 1.2 – Minimum allowed performance for fenestration**
				Issue: Partners have asked if windows that do not comply with Item 1.2 may be used as long as the total building thermal envelope UA meets the requirements of the 2009 IECC.
				Resolution: This Checklist promotes high-performance thermal enclosure systems in part by limiting the extent to which components can be downgraded when using trade-offs. Because windows typically have high U-factors compared to insulated walls, they are especially prone to compromising the thermal enclosure system. Homes qualified under the Performance Path are required to have a fenestration package that meets or exceeds the component U-factor and SHGC requirements specified in the 2009 IECC Table 402.1.1. Footnote 2 of the Checklist describes several exceptions to these requirements, however. The following exceptions relate to fenestration U-factors: “a) An area-weighted average of fenestration products shall be permitted to satisfy the U-factor requirements; “c) 15 square feet of glazed fenestration per dwelling unit shall be exempt from the U-factor and SHGC requirements, and shall be excluded from area-weighted averages calculated using a) and b) above;” Using this provision, the U-factors of different fenestration products may be averaged to meet 2009 IECC requirements, but fenestration characteristics may not be traded off with other components of the building envelope. Homes qualified under the Prescriptive Path are required to have a fenestration package that meets or exceeds ENERGY STAR requirements, which are more rigorous than the requirements of the 2009 IECC.
00463	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Section 2 – Foundation wall insulation configuration**
				Issue: Partners have asked if insulation can be installed partially on the interior side of a foundation wall and partially on the exterior side of a foundation wall and comply with Section 2.
				Resolution: Although a thermal bridge will be introduced to the foundation wall assembly, this configuration is not in violation of any of the ENERGY STAR requirements for insulation installation or reduced thermal bridging. Therefore, homes with insulation installed partially on the interior side of the foundation wall and partially on the exterior side of the foundation wall are eligible to earn the ENERGY STAR. Though not a requirement, EPA recommends that a continuous insulation layer be provided for all foundation walls. A discussion of several finish options for exterior insulation can be found

				at: http://www.greenbuildingadvisor.com/blogs/dept/qa-spotlight/how-finish-exterior-foundation-insulation.
00464	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Section 2 – Transition to Section 3 of the Rater Design Review Checklist and Section 1 of the Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the Thermal Enclosure System Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: As part of an overall transition from the Thermal Enclosure System Rater Checklist to the Rater Design Review Checklist and Rater Field Checklist, Item 2.1 will be moved to Item 3.1 of the Rater Design Review Checklist and Item 1.2 of the Rater Field Checklist. Item 2.2 from this checklist will be moved to 1.3 of the Rater Field Checklist. The overall intent of these new Items will not change. However, Item 1.2 of the Rater Design Review Checklist will reflect that this Item is to be completed prior to construction, based upon the design, and Item 1.2 of the Rater Field Checklist will reflect that this Item is to be completed in the field, after construction, and should reflect the insulation levels specified during the design stage. Item 3.1 of the Rater Design Review Checklist will read as follows: 3.1: “Specified ceiling, wall, floor, and slab insulation levels comply with one of the following options: • Meets or exceeds 2009 IECC levels OR; • Achieves ≤ 133% of the total UA resulting from the U-factors in 2009 IECC Table 402.1.3, per guidance in Footnote 4d, AND specified home infiltration does not exceed the following: 3 ACH50 in CZs 1, 2 / 2.5 ACH50 in CZs 3, 4 / 2 ACH50 in CZs 5, 6, 7 / 1.5 ACH50 in CZ 8” Item 1.2 of the Rater Field Checklist will read as follows: 1.2: “Insulation meets or exceeds levels specified in Item 3.1 of the Rater Design Review Checklist” Item 1.3 of the Rater Field Checklist will read as follows: “All insulation achieves RESNET-defined Grade I installation. See Footnote 4 for alternatives.” To improve readability, a new Footnote, Footnote 4, will be added to Item 1.3 with the alternatives to Grade I insulation installation, as follows: “Two alternatives are provided: a) Grade II cavity insulation is permitted to be used for assemblies that contain a layer of continuous, air impermeable insulation ≥ R-3 in Climate Zones 1 to 4, ≥ R-5 in Climate Zones 5 to 8; b) Grade II batts are permitted to be used in floors

				if they fill the full depth of the floor cavity, even when compression occurs due to excess insulation, as long as the R-value of the batts has been appropriately assessed based on manufacturer guidance and the only defect preventing the insulation from achieving Grade I is the compression caused by the excess insulation.”
00554	**04/01/2016**	**Rater Design Review Checklist (Version 3 / 3.1, Rev. 08)**	**Change**	**Section 2 – Allowance for triple-glazed windows in PHIUS+ and PHI certified homes**
				Issue: Several partners have requested that the triple-glazed window alternative provided in Footnote 3 of Item 2.1 for homes certified through the Passive House Institute US (PHIUS+) be extended to homes certified through the Passive House Institute (PHI). Homes certified through these organizations include mandatory requirements for very high performance windows, some of which are not NFRC rated because they are produced in Europe.
				Resolution: To avoid discouraging participation in the ENERGY STAR certified homes program of these highly efficient homes, the alternative will be extended to Passive House Institute (PHI) homes. Footnote 3 will be modified to reference PHI certified homes in addition to PHIUS+ homes as follows: “In PHIUS+ or PHI certified homes, where triple-glazed window assemblies with thermal breaks / spacers between the panes are used, such windows meet the intent of Item 2.1 and shall be excluded when assessing compliance of a) through e), above.”
00465	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Attic knee wall insulation levels**
				Issue: Partners have asked whether insulation in attic knee walls should meet the levels required for attics and ceilings or to the level required for walls.
				Resolution: Under the Prescriptive Path of the program, attic knee walls shall be insulated to at least the level required for above-grade walls, unless an alternative equivalent U-factor or total UA calculation is used, per Footnote 3d. Under the Performance Path of the program, any level of insulation is permitted, however the home will be benchmarked against the ENERGY STAR Reference Design home, for which the attic knee walls are configured with the insulation level required for above-grade walls.
00019	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 2 – Use of bagged batts to meet quality installed insulation requirements**
				Issue: Partners have asked whether bagged batts (fiberglass batts encapsulated in perforated plastic) are acceptable for insulating basement and crawlspace walls.
				Resolution: From a thermal perspective, this section does not impose any restrictions on using bagged batts. Note though that Item 1.6 of the Water Management System Builder Checklist requires that class 1 vapor retarders not be installed on the interior side of air permeable insulation in exterior below-grade walls. As long as the plastic used is not a class 1

				vapor retarder, then the bagged batts are permitted to be used. Reference Footnote 6 of the Water Management System Builder Checklist for further information on class 1 vapor retarders.
00020	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 2 – Options to meet floor insulation requirements in space-constrained cavities**
				Issue: Partners have asked how to meet the floor insulation requirements when space constraints exist, such as ductwork located in the floor cavity. Partners have also asked whether the insulation on the ductwork is permitted to contribute to the required floor insulation.
				Resolution: The R-value of floor insulation can be reduced in cavities where space constraints exist, such as ductwork located in the floor cavity. However, an alternative equivalent U-factor or total UA calculation shall be used to demonstrate compliance with Item 2.1, the insulation installation shall be Grade I (or Grade II for surfaces with insulated sheathing), and an air barrier shall be fully aligned with the insulation at the interior surface of the floor, including supports to ensure permanent contact and blocking at exposed edges. The insulation on the ductwork is permitted to be accounted for when determining compliance with the item.
00625	**09/01/2017**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Item 1.3 – Grade I insulation not required in adiabatic assemblies**
				Issue: Partners have asked whether insulation in adiabatic assemblies must achieve Grade I installation, per Item 1.3.
				Resolution: The primary intent of requiring Grade I insulation installation is to help ensure that a complete thermal enclosure system is provided for a home. Because insulation in adiabatic assemblies is not used to reduce heat transfer, such insulation is not required to achieve Grade I installation. However, it is recommended that insulation in adiabatic assemblies be installed to achieve Grade I so that the rated performance of its intended purpose (e.g., sound dampening, fire protection) is achieved. EPA also cautions Raters to carefully evaluate whether an assembly is truly adiabatic. For example, a common wall between townhomes may be adiabatic in some areas and non-adiabatic in other areas. Grade I insulation would be required in the non-adiabatic portions and recommended in the remainder of the wall.
00767	**09/01/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Item 1.3 - References updated to latest RESNET standard**
				Issue: This document contains a reference to the “RESNET Standard”. In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Therefore, the current reference is outdated.
				Resolution: The reference to the “RESNET Standard” will be updated to the ANSI-standard version. To reflect this change, the following edit will be made: • Item 1.3: “All insulation achieves Grade I installation per ANSI / RESNET / ICC Standard 301…”

				In addition, where a specific version of Standard 301 is not specified, a new Footnote will be added as follows: "Ensure compliance with this requirement using the version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings. "
00021	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 2.1 – Allowance of partially uninsulated assemblies**
				Issue: Partners have asked if some areas of ceiling, wall, or floor assemblies could be left uninsulated as long as the total UA met the 2009 IECC requirements.
				Resolution: The intent of Item 2.1 is to ensure that the overall thermal envelope of the home meets or exceeds the insulation level requirements of the 2009 IECC, as demonstrated by using the prescriptive R-values, an alternative equivalent U-factor calculation, or an alternative equivalent total UA calculation. Therefore, it is possible for homes with partially uninsulated assemblies to meet the intent of this item. However, note that the intent of Section 4 of this checklist is to reduce thermal bridging. It imposes minimum insulation levels for several areas of the thermal envelope and reduced thermal bridging requirements for above-grade walls separating conditioned from unconditioned space. These requirements must also be met for every qualified home. Therefore, while Version 3 does not explicitly require that all areas of the thermal enclosure be insulated to qualify the home, the builder must meet the requirements of Item 2.1 and Section 4. Furthermore, EPA recommends, but does not require, that all areas of the thermal enclosure be insulated to help minimize thermal bypasses and improve occupant comfort.
00110	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Change**	**Item 2.1 – Insulation level tradeoffs for low infiltration rates**
				Issue: Several partners have noted that they use advanced construction practices and materials that result in infiltration rates significantly below the ENERGY STAR Reference Design values. Because reduced infiltration rates can improve the thermal enclosure system by reducing convective gains and losses, partners have asked whether such techniques are permitted to be used in exchange for insulation levels less than those required by Item 2.1
				Resolution: Item 2.1 is intended to ensure that every qualified home includes a complete thermal enclosure system with improved performance relative to standard practice. Partners now have an additional option to meet the intent of Item 2.1 by achieving meaningful reductions in infiltration relative to the ENERGY STAR Reference Design in exchange for meeting less stringent insulation requirements. Homes that achieve ≤ 50% of the infiltration rate defined for their Climate Zone in Exhibit 1 of the National Program Requirements are permitted to use insulation levels below the 2009 IECC requirements, with some limitations. Item 2.1 will be revised as follows: "Ceiling, wall, floor, and slab insulation levels shall comply with one of the following options:

				"2.1.1 Meet or exceed 2009 IECC levels **OR;** "2.1.2 Achieve ≤ 133% of the total UA resulting from the U-factors in 2009 IECC Table 402.1.3, excluding fenestration and per guidance in Footnote 3d, **AND** home shall achieve ≤ 50% of the infiltration rate in Exhibit 1 of the National Program Requirements."
00201	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Refinement**	**Item 2.1 – Applicability of Footnotes 3, 4, & 5 to Item 2.1.1 and 2.1.2**
				Issue: Partners have asked if Footnotes 3, 4, and 5 apply to both Item 2.1.1 and 2.1.2. For reference, Footnote 3 provides exceptions and alternatives to meeting the component insulation requirements in the 2009 IECC, while Footnote 4 & 5 define slab insulation requirements.
				Resolution: All three Footnotes apply to Item 2.1.1. In contrast, Item 2.1.2 requires that a total UA calculation be completed and, therefore, specifically references Footnote 3d. Footnote 4 and 5 also apply to this Footnote. To better convey which sections of Footnote 3, 4, and 5 are applicable to Items 2.1.1 and 2.1.2, these Footnotes will be removed from 2.1 and redistributed, as applicable, to Items 2.1.1 and 2.1.2. Specifically, Footnote 3, 4, and 5 will be applied to Item 2.1.1. Only Footnotes 4 and 5 will be applied to Item 2.1.2 because Footnote 3d is already referenced within Item 2.1.2, and the rest of Footnote 3 is not applicable to this Item.
00422	**09/23/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 2.1.2 & Footnote 3d – Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Section 1 already requires fenestration to meet or exceed the component U-factor and SHGC requirements specified in the 2009 IECC – Table 402.1.1 for homes using the Performance Path, and even higher levels for homes using the Prescriptive Path. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than code from contributing to the total UA of the home.
				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While Section 1 still requires fenestration to meet or exceed the component U-factor and SHGC requirements specified in the 2009 IECC – Table 402.1.1, fenestration that does exceed code can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. The phrase "excluding fenestration and" will be removed from Item 2.1.2. In addition, Footnote 3d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows:

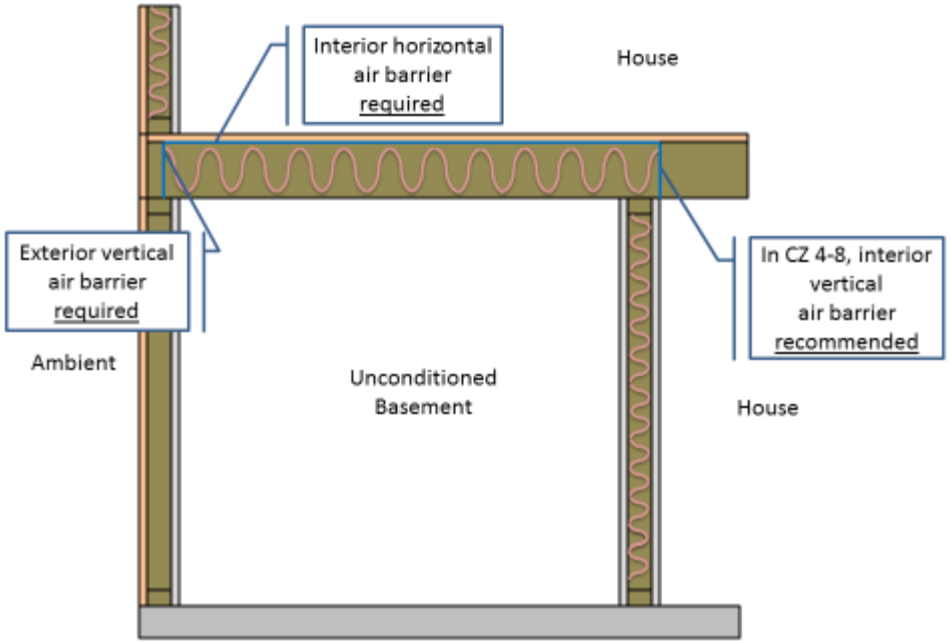
				An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method.”
00022	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Change**	**Footnote 3 – Insulation levels for steel-frame assemblies**
				Issue: Partners have advised that the checklist references erroneous guidance contained in the 2009 IECC related to the UA calculation for a steel-frame envelope assembly. Additionally, EPA has identified a minor typographical error in Footnote 3d. The footnote refers to the American Society of Heating, Refrigeration, and Air-Conditioning Engineers as “AHRAE”.
				Resolution: Footnote 3d has been revised to read as follows: “…The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method.”
00023	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Footnote 3 – Methods for demonstrating compliance with insulation requirements**
				Issue: Partners have asked for guidance about the three options available for demonstrating compliance with Item 2.1.
				Resolution: Item 2.1 requires that ceiling, wall, floor, and slab insulation levels meet or exceed the 2009 IECC. There are three different ways to demonstrate compliance with this requirement: 1. Use the prescriptive R-values in Table 402.1.1 of the 2009 IECC. 2. Use an alternative equivalent U-factor calculation. This approach accounts for all components in the assembly, such as drywall thickness, framing fraction, cavity insulation, and sheathing. Strategies such as increasing the framing spacing, adding insulated sheathing, and increasing the drywall thickness can all be used towards meeting the assembly U-factor. An assembly with a U-factor equal or less than specified in Table 402.1.3 of the 2009 IECC complies, even if the cavity insulation is less than the prescriptive values in option 1. 3. Use an alternative equivalent total UA calculation. This approach is similar to option 2, but allows insulation to be traded off among assemblies (e.g., insulation can be moved

				from the walls to the ceiling or from the ceiling to the floor). This may result in a home where the insulation in one assembly is less than the prescriptive value while another assembly has more than the prescriptive value (e.g., the wall may have less than R-20 cavity insulation, while the ceiling has more than R-38). A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 complies. The insulation levels of all non-fenestration components (i.e., ceilings, walls, floors, and slabs) can be traded off using the UA approach. Note that fenestration products (i.e., windows, skylights, doors) shall not be included in this calculation. Also, note that while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in items 4.1 through 4.3 of the checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated. Any of these three options may be used to demonstrate compliance with Item 2.1. Note that there is a simulated performance alternative in the 2009 IECC code, Section 405, that allows one to reduce insulation in exchange for tighter ducts, less infiltration, etc. This is *not* one of the options available to demonstrate compliance with Item 2.1.
00127	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Refinement**	**Footnote 5 – Correction to hyperlink**
				Issue: Partners have noted that the hyperlink and text for the website that provides a list of currently exempt details for slab edge insulation needs to be corrected.
				Resolution: Both the hyperlink and the text for the website that provides a list of currently exempt details for slab edge insulation will be corrected to “www.energystar.gov/slabedge.”
00202	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 2.2 – Grade II insulation alternative**
				Issue: Partners have asked whether the alternative provided in Item 2.2, which permits the use of Grade II insulation, is able to be used if continuous insulation products other than insulated sheathing are installed. Item 2.2 currently reads “all ceiling, wall, floor, and slab insulation shall achieve RESNET-defined Grade I installation or, alternatively, Grade II for surfaces with insulated sheathing at levels defined in Item 4.4.1.”
				Resolution: The intent of the alternative provided in Item 2.2 is to allow the use of Grade II cavity insulation in assemblies that include any type of continuous, air impermeable, insulation and not only insulated sheathing products. Air impermeable insulation is defined in Chapter 2 of the 2009 IRC as “An insulation having an air permeance equal to or less than 0.02 L/s-m^2 at 75 Pa pressure differential tested according to ASTM E 2178 or E 283.” To reflect this clarification, Item 2.2 will be revised as follows:

				"All ceiling, wall, floor, and slab insulation shall achieve RESNET-defined Grade I installation or, alternatively, Grade II for surfaces that contain a layer of continuous, air impermeable insulation ≥ R-3 in Climate Zones 1 to 4, ≥ R-5 in Climate Zones 5 to 8."
00203	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 2.2, 3.2, & Footnote 8 – Use of compressed batts in floors with open web trusses**
				Issue: Footnote 8 allows, under certain circumstances, for batts that completely fill floor cavities to be used to meet Items 2.2 and 3.2, even when compression occurs due to excess insulation. Partners asked whether this allowance is applicable to floor assemblies with open web trusses. Partners have also asked, if it is generally applicable, then are the openings in the trusses required to be filled with insulation.
				Resolution: Footnote 8 requires that all six sides of the floor cavity must be enclosed. An open web truss is not a considered means of enclosure, therefore an air barrier must be added to enclose the floor cavity for Footnote 8 to be applicable to this scenario. Because there are no reduced thermal bridging requirements for floors in Version 3, the openings in the trusses do not need to be filled with insulation for the home to be certified. EPA recommends, but does not require, that that openings be insulated and notes that some insulation types, such as blown-in products, can be more easily installed in these irregularly shaped areas.
00024	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 2.2 & Item 4.4.1 – Request to use reflective insulation products to create a thermal break**
				Issue: Partners have asked for permission to use radiant barrier house wrap as reflective insulation in place of the insulated sheathing and siding options referenced in Item 2.2 and Item 4.4.1.
				Resolution: Radiant barrier house wrap does not satisfy the insulated sheathing and siding options referenced in Item 2.2 and Item 4.4.1. The R-4 value noted in one product's specifications provided by a partner is dependent upon a 0.375 inch airspace, which is not integral to the product. Additionally, these products are typically classified by the ICC Evaluation Service as weather barriers as opposed to insulation products.
00466	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Section 3 – Transition to Section 2 of the Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the Thermal Enclosure System Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.

				Resolution: As part of an overall transition from the Thermal Enclosure System Rater Checklist to the Rater Design Review Checklist and Rater Field Checklist, Section 3 will be moved to Section 2 of the Rater Field Checklist. The overall intent of these new Items will not change significantly. However, the Section has been reformatted due to space considerations, and important clarifications and refinements are detailed in Policy Record Entry 00467.
00467	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Section 3, Footnotes 8 & 9 – Clarified intent of air barrier configurations**
				Issue: Partners have asked for clarification regarding several aspects of the requirements for fully-aligned air barriers in Section 3, including: • What the required orientation of the air barrier is for each assembly type (i.e., horizontal, vertical, or both), • Whether the requirements for walls in Item 3.1 actually also encompass rim joists and other floor cavities. Partners have also noted several inconsistencies in the terminology used throughout Section 3 and its Footnotes, such as “blocking at exposed edge”, which simply implies a vertical air barrier at the exterior surface of the insulation.
				Resolution: To clarify the intended orientation of the air barrier for each assembly type, Section 3 will be edited to distinguish between vertical and horizontal air barriers for ceilings, walls, and floors, as well as to define the required locations of the air barriers relative to the surface of the insulation. The requirements for each component type (i.e., ceiling, walls, and floors) will be grouped with the details associated with that component (e.g., ceiling requirements will be grouped with the list of ceiling details that must be inspected). The requirements for floors will be clarified by: - Relocating all floor details into the Floors Section - Clarifying that an air barrier is always required at the exterior vertical surface of floor insulation - Clarifying that an air barrier is also required at the interior horizontal surface of the floor insulation, if located over unconditioned space. - Clarifying that an air barrier is recommended, but not required, at the interior vertical surface of all floor insulation in CZ 4-8. In addition, the language regarding wind baffles at ceiling insulation will be made more consistent. Finally, the phrase, “blocking at exposed edge” in the section on floors will be rephrased as a requirement for an air barrier at the “exterior vertical surfaces of floor insulation”. The revised language in Section 3 will be as follows:

				"At each insulated location below, a complete air barrier shall be provided that is fully aligned as follows: • Ceilings: At interior or exterior horizontal surface of ceiling insulation in Climate Zones 1-3; at interior horizontal surface of ceiling insulation in Climate Zones 4-8. Also, at exterior vertical surface of ceiling insulation in all climate zones (e.g., using a wind baffle that extends to the full height of the insulation in every bay or a tabbed baffle in each bay with a soffit vent that prevents wind washing in adjacent bays) • Walls: At exterior vertical surface of wall insulation in all climate zones; also at interior vertical surface of wall insulation in Climate Zones 4-8 • Floors: At exterior vertical surface of floor insulation in all climate zones and, if over unconditioned space, also at interior horizontal surface including supports to ensure alignment. See Footnotes 10 and 11 for alternatives" The following details within each section will be modified: Walls: • Item 3.1.5 will be revised to state, "Walls adjoining porch roofs or garages" • Item 3.1.8, garage rim / band joist adjoining conditioned space, will be deleted and a new Item added to the Floors Section to address this detail. Floors: • A new Item will be added to address rim / band joists and other floors that are adjoining unconditioned space: "All other floors adjoining unconditioned space (e.g., rim / band joists at exterior wall or at porch roof)" Per Policy Record Entry 00428, Footnotes 7 & 10 will be merged and renumbered to improve clarity and reflect new exemptions to the requirement for interior air barriers in basements. This new Footnote will be further modified as follows: "All insulated vertical surfaces are considered walls (e.g., above and below grade exterior walls, knee walls) and must meet the air barrier requirements for walls. The following exceptions apply: air barriers recommended, but not required, in adiabatic walls in multifamily dwellings; and, in Climate Zones 4 through 8, an air barrier at the interior vertical surface of insulation is recommended but not required in basement walls or crawlspace walls. For the purpose of these exceptions, a basement or crawlspace is a space for which ≥ 40% of the total gross wall area is below-grade." In addition, Footnote 7, which recommends the inclusion of an interior air barrier at rim / band joists in Climate Zones 4 through 8, will be refined to reflect this new policy and moved to Footnote 9 of the Rater Field Checklist, as follows: "EPA highly recommends, but does not require, an air barrier at the interior vertical surface of floor insulation in Climate Zones 4-8."

				Exhibits 1 through 4 illustrate the clarified policy for floors. In Exhibit 1, the floor is adjacent to the outdoors and over an unconditioned basement. An air barrier is therefore required at the exterior vertical surface of the floor insulation and at the interior horizontal surface of the insulation. In addition, if the home was in CZ 4-8, an air barrier would also be recommended, but not required, at the interior vertical surface of the insulation.  Exhibit 1: Floor Cavity Adjacent to Outdoors & Over Unconditioned Basement Exhibit 2 illustrates a similar configuration, except that the floor is located over an unconditioned garage. In this case, the same air barriers are required for thermal purposes. However, for indoor air quality purposes, an air barrier is also required at the wall that separates the attached garage from occupiable space and, also, an air barrier must be installed and sealed at the floor cavity aligned with this wall.

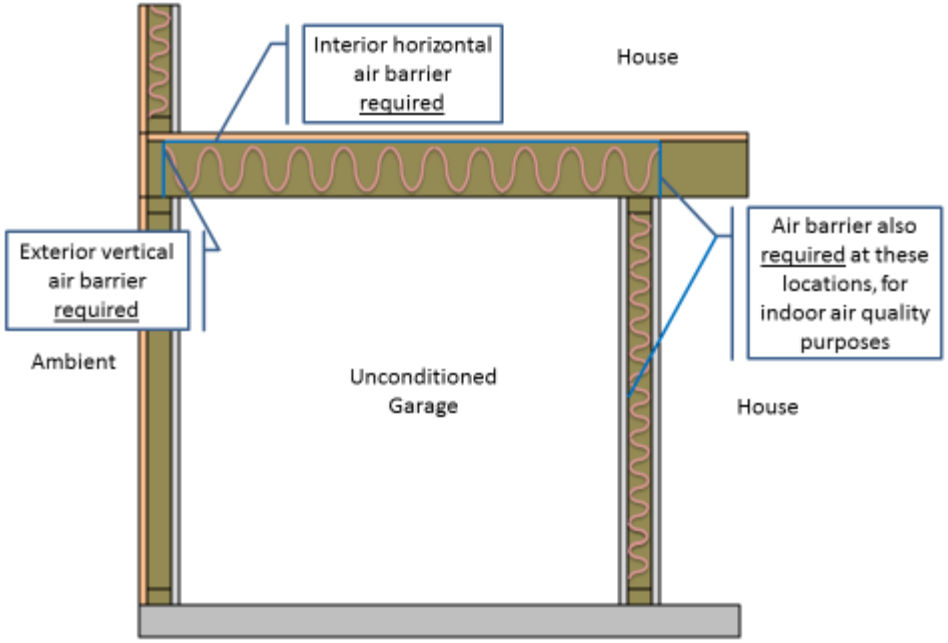
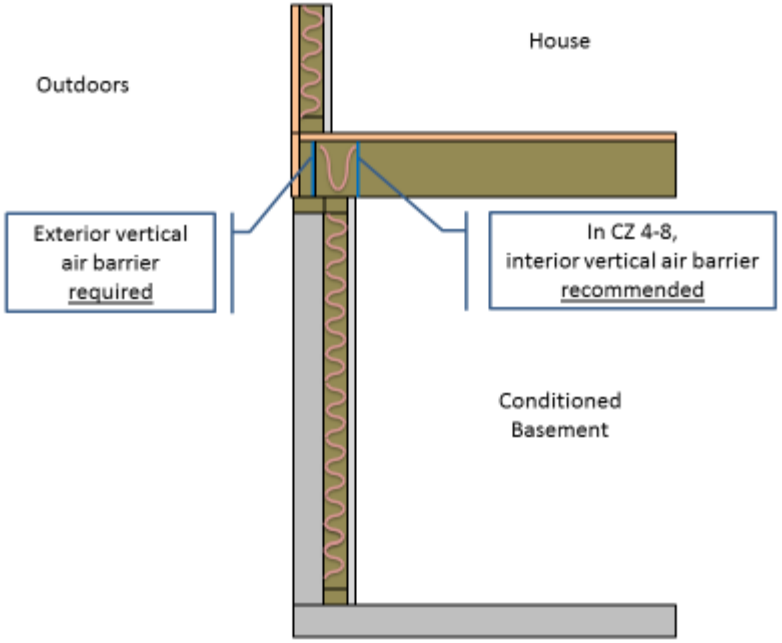


Exhibit 2: Floor Cavity Adjacent to Outdoors & Over Unconditioned Garage

Exhibits 3 & 4 show configurations where the floor cavity is adjoining unconditioned space, the outdoors and a porch roof, respectively. However, in both cases, these floors are not located over unconditioned space. Therefore, the only air barrier required is at the exterior vertical surface of the insulation. If these configurations were located in CZ 4-8, then an interior vertical air barrier would also be recommended, but not required.

				 Exhibit 3: Floor Cavity Adjacent to Outdoors

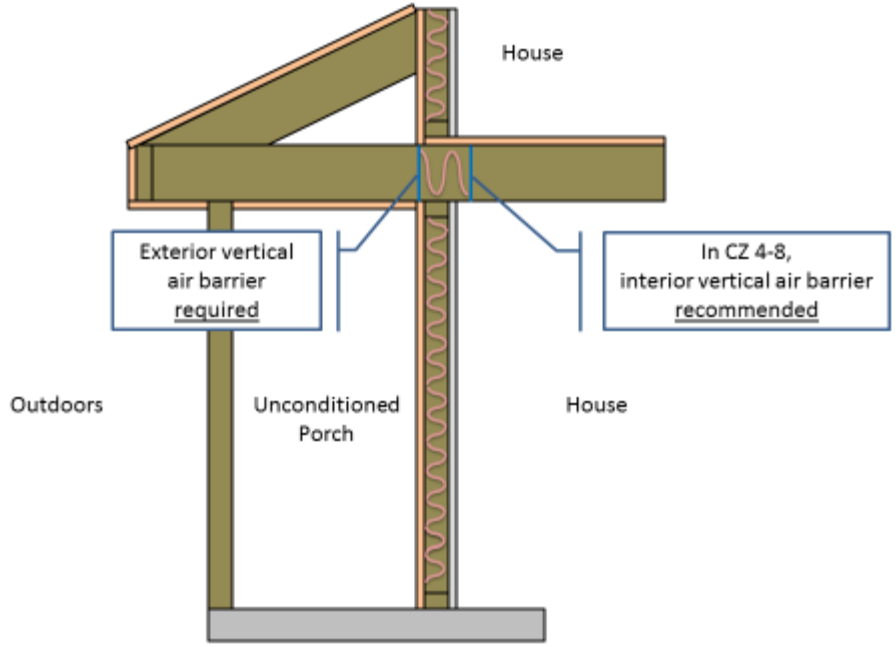


Exhibit 4: Floor Cavity Adjacent to Unconditioned Porch Roof

In Exhibit 5, a cantilever configuration is illustrated, in which the floor is both adjacent to and over the outdoors. Therefore, an air barrier is required at the exterior vertical surface of the insulation and at the interior horizontal surface of the insulation. If the configuration was located in CZ 4-8, then an interior vertical air barrier would also be recommended. Finally, as a best practice, an air barrier would also be included at the exterior horizontal surface of the insulation.

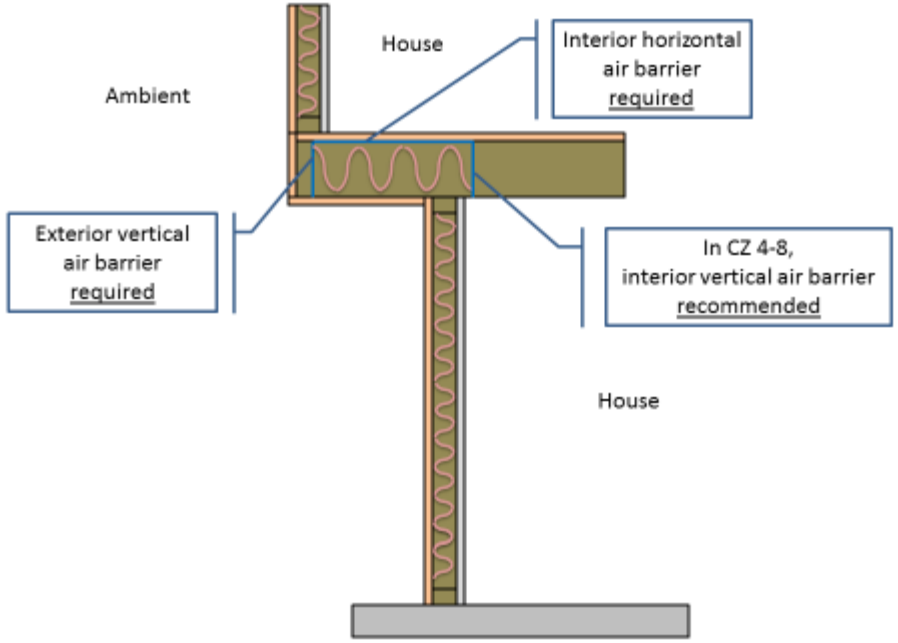


Exhibit 5: Floor Cavity Adjacent to & Over Outdoors

Footnote 8, which provides the alternative compliance option of completely filling a floor cavity in lieu of using insulation supports (e.g., staves, netting), will be revised by removing references to air barriers because the requirements are not intended to be any different when this alternative is used:

"Examples of supports necessary for permanent contact include staves for batt insulation or netting for blown-in insulation. Alternatively, supports are not required if batts fill the full-depth of the floor cavity, even when compression occurs due to excess insulation, as long as the R-value of the batts has been appropriately assessed based on manufacturer guidance and the only defect preventing the insulation from achieving the required installation grade is the compression caused by the excess insulation."

Finally, Footnote 9, which provides the alternative compliance option of aligning the air barrier with the exterior (instead of interior) horizontal surface of the floor insulation, will be revised to use consistent terminology regarding the required location of air barriers, as follows:

				"Alternatively, an air barrier is permitted to be installed at the exterior horizontal surface of the floor insulation if the insulation is installed in contact with this air barrier, the exterior vertical surfaces of the floor cavity are also insulated, and air barriers are included at the exterior vertical surfaces of this insulation."
00025	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Change**	**Section 3 – Attic kneewalls, skylight shafts, and sloped attics**
				Issue: Partners have noted that attic knee walls and sloped attics, which may require very different strategies for aligning the air barrier and insulation, are grouped together in Item 3.1.3. They suggested that attic knee walls may be more logically grouped with skylight shaft walls in Item 3.1.4. Additionally, partners have continued to ask for clarification about the air barrier requirements for sloped surfaces. The terms "sloped ceilings" and "sloped attics" were introduced with Revision 02 to help clarify the requirements for air barriers, but have not achieved EPA's goal of improving clarity.
				Response: To simplify definitions, Footnote 11 will be revised as follows: "All insulated vertical surfaces are considered walls (e.g., exterior walls, knee walls) and must meet the air barrier requirements for walls. All insulated ceiling surfaces, regardless of slope (e.g., cathedral ceilings, tray ceilings, conditioned attic roof decks, flat ceilings, sloped ceilings), must meet the requirements for ceilings." The terms "sloped ceilings" and "sloped attics" will be removed from the program documents, as they are no longer needed. Item 3.1.3 will be simplified from "Attic knee walls / sloped attics" to "Attic knee walls". The introductory block of Section 3 will be revised as follows: "At each insulated location noted below, a complete air barrier shall be provided that is fully aligned with the insulation as follows: • "At interior or exterior surface of ceilings in Climate Zones 1-3; at interior surface of ceilings in Climate Zones 4-8. Also, include barrier at interior edge of attic eave in all climate zones using a wind baffle that extends to the full height of the insulation. Include a baffle in every bay or a tabbed baffle in each bay with a soffit vent that will also prevent wind washing of insulation in adjacent bays • "At exterior surface of walls in all climate zones; and also at interior surface of walls for Climate Zones 4-8 • "At interior surface of floors in all climate zones, including supports to ensure permanent contact and blocking at exposed edge."
00026	**07/25/2011**	**Thermal Enclosure System Rater**	**Comment**	**Section 3 – Sealing requirements for drywall used as an air barrier**
				Issue: Partners have asked about the correct installation of drywall and other rigid sheathing products for use as an interior air barrier.

		Checklist (Version 3, Rev. 03)		**Resolution:** Per Footnote 6, "For purposes of this checklist, an air barrier is defined as any durable solid material that blocks air flow between conditioned space and unconditioned space, including necessary sealing to block excessive air flow at edges and seams and adequate support to resist positive and negative pressures without displacement or damage." Drywall and other kinds of rigid sheathing products must be installed with any "necessary sealing to block excessive air flow at edges and seams" as well as support to resist changes in pressure, which in many cases will be the rigidity of the material itself.
00027	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 3 – Fully-aligned air barrier locations**
				Issue: Partners have asked if an air barrier is required on the bottom of floor joists between a basement and first story if the floor is within the pressure and thermal boundary and the basement is also unconditioned. Partners have also asked if an air barrier is required behind electrical boxes and at rim joists.
				Resolution: Section 3 states that air barriers are required at each insulated location noted, including "at interior surface of floors in all climate zones, including supports to ensure permanent contact and blocking at exposed edges." Therefore, if the floor was not insulated, neither an exterior nor an interior air barrier would be required. If the floor was insulated, the underside of the floor joists would be the exterior surface of that assembly, so an air barrier would not be required at that location. Instead, an air barrier would be required at the interior surface. The checklist does not currently include a requirement for either air sealing or providing an air barrier behind electrical boxes. If the electrical box was adjacent to an insulated wall, then the wall would need to meet the same air barrier requirements as all other insulated walls. Rim joists are exempt from the requirement for an interior air barrier, but are required to have an exterior air barrier per Section 3 and Footnote 7.
00113	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Section 3 – Ceiling air barrier location**
				Issue: Partners have asked where air barriers are required to be installed when insulating an attic roof deck with fiberglass batts.
				Resolution: Section 3 explains that air barriers are required to be fully aligned with insulation "at interior or exterior surface of ceilings in Climate Zones 1-3; at interior surface of ceilings in Climate Zone 4-8." If fiberglass batts are installed to maintain contact with the roof deck, then the roof deck is the exterior air barrier. In Climate Zones 1-3, no interior air barrier is required, but in Climate Zones 4-8, an interior air barrier must be installed.
00204	**09/10/2012**		**Comment**	**Section 3 – Use of baffles in attic bays with a soffit vent**

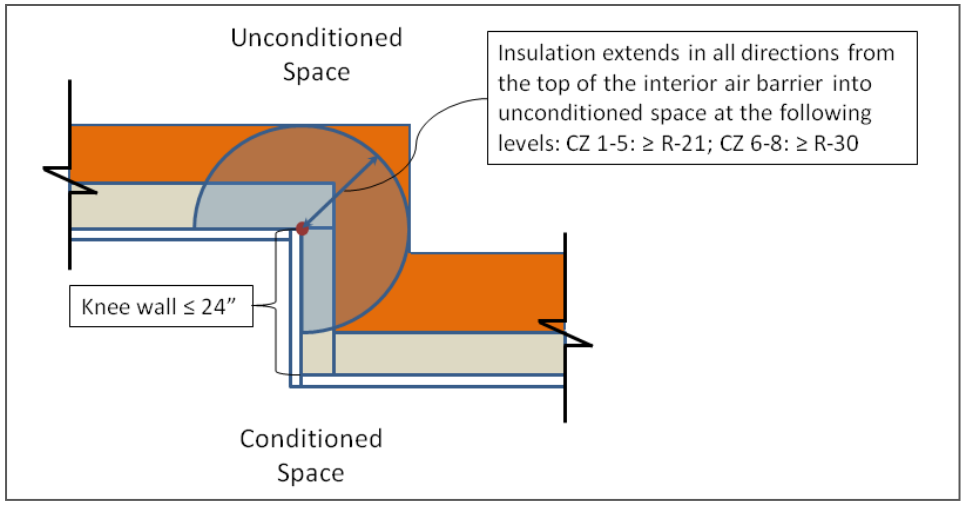
		Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)		**Issue:** Partners have asked in which attic eave bays a wind baffle must be provided and have also asked in which attic eave bays a tabbed wind baffle must be used.
				Resolution: The first bullet point of Section 3 of this Checklist states: "Include barrier at interior edge of attic eave in all climate zones using a wind baffle that extends to the full height of the insulation. Include a baffle in every bay or a tabbed baffle in each bay with a soffit vent that will also prevent wind washing of insulation in adjacent bays" Each attic bay with a soffit vent must contain a wind baffle that extends from the interior edge of the attic eave to the full height of the insulation. Therefore, if a continuous soffit vent is installed, each bay must have a wind baffle that extends from the interior edge of the attic eave to the full height of the insulation. If soffit vents are installed in some attics bays but not others, then each attic bay with a soffit vent must include a baffle that extends from the interior edge of the attic eave to the full height of the insulation. Furthermore, these baffles must include tabs on the left and right sides to prevent the movement of wind into the insulation in adjacent bays.
00205	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Section 3 – Air barrier requirements for below-grade walls**
				Issue: Partners have asked whether air barriers in below-grade walls are required to be fully aligned with the insulation at the exterior surface of walls in all climate zones and also at the interior surface of walls in Climate Zones 4-8. For example, if an insulated framed wall is offset from the below-grade foundation wall, would an exterior air barrier be required that is fully aligned with the insulation in the framed wall or would the below-grade foundation wall be permitted to be used even though it is offset?
				Resolution: Air barriers that are fully aligned with insulation are critical to the overall performance of the thermal envelope. Allowing air barriers to be misaligned can create convective loops within cavities that can have a significant effect on the insulation's energy performance. For this reason, EPA will retain its current policy and require that air barriers are installed that are fully aligned with the insulation at both the interior and exterior surface of walls in Climate Zones 4-8, regardless of whether they are above grade or below grade. To clarify that Section 3 does apply to foundation walls, Footnote 10 will be revised to read: "All insulated vertical surfaces are considered walls (e.g., above and below grade exterior walls, knee walls) and must meet the air barrier requirements for walls . . ."
00314	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Section 3 – Alignment of air barriers & insulation for foundation walls w/ interior framing**
				Issue: Partners in Climate Zones 4 through 8 have asked, if interior wood frame walls are offset from the foundation wall, is batt insulation permitted to be installed such that it extends from the face of the interior air barrier (e.g., drywall) to the face of the foundation wall to comply with the air barrier requirements of Section 3.

				Resolution: Insulating from the face of the interior air barrier to the face of the foundation wall does meet the intent of Section 3 because, in this configuration, the insulation will be fully aligned with both the interior and exterior air barrier.
00315	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Section 3 – Use of dense-packed cellulose**
				Issue: Partners have asked if dense-packed cellulose meets the intent of an air barrier per the requirements of Section 3 of this Checklist.
				Resolution: As stated in Footnote 6, “An air barrier is defined as any durable solid material that blocks air flow between conditioned space and unconditioned space.” Even when dense-packed, cellulose is a porous material that does not block air flow and therefore does not qualify as an air barrier.
00428	**05/01/2014**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 3.1 – Removal of interior air barrier requirement in most basements & crawlspaces**
				Issue: Partners in Climate Zones 4 through 8 have expressed difficulty meeting the requirement in Item 3.1 to include an interior air barrier on all below-grade exterior walls. The primary challenge has been identifying cost-effective materials that meet a confluence of program, code, and manufacturer requirements addressing resistance to airflow, vapor permeability, flame spread index, smoke-developed index, and exposure limits for ultraviolet light.
				Resolution: From a building-science perspective, the primary value of including an interior air barrier is to reduce the risk of condensation by preventing moisture-laden interior air from coming in contact with a cold surface (i.e., the interior face of the foundation wall). This is primarily a concern in the summer in Climate Zones 4 and 5 and in the winter in Climate Zones 6 through 8. Common considerations when selecting the interior air barrier material are: to avoid the use of Class 1 vapor retarders on the interior side of air-permeable insulation in exterior below-grade walls, per Item 1.6 of the Water Management System Builder Checklist; to ensure that code-mandated flame spread index and smoke-developed index requirements have been met; and to comply with manufacturer requirements limiting ultraviolet light exposure. A variety of materials and strategies can be used to meet this intent, as long as the specific properties of the material selected have been assessed for compliance with the requirements listed above. Several strategies that have been used successfully include adhering rigid or spray foam directly to the foundation wall; placing drywall on the interior side of a framed wall filled with air-permeable insulation; or, where UV exposure is limited, placing a house wrap product on the interior side of a framed wall filled with air-permeable insulation. However, it was not EPA’s intent to require the use of drywall finishes or foam insulation products in basements or crawlspaces as a prerequisite for ENERGY STAR certification under Version 3, and less expensive materials such as house wrap may not be permitted by code

				officials due to UV exposure. Therefore, to promote more consistent application of program requirements and address concerns about cost-effectiveness, the requirement in Item 3.1 to include an interior air barrier on all below-grade walls will be made a recommendation, rather than a requirement. Though it will no longer be a mandatory requirement, EPA highly encourages partners to include this detail to reduce the risk of moisture-related issues. To reflect this change, and improve clarity, Footnote 7 and 10 will be merged and revised as follows: "All insulated vertical surfaces are considered walls (e.g., above and below grade exterior walls, knee walls) and must meet the air barrier requirements for walls. The following exceptions apply: air barriers recommended, but not required, in adiabatic walls in multifamily dwellings; and, in Climate Zones 4 through 8, an air barrier at the interior vertical surface of insulation is recommended but not required in basement walls or crawlspace walls. For the purpose of these exceptions, a basement or crawlspace is a space for which ≥ 40% of the total gross wall area is below-grade." In addition, the guidance related to ceiling surfaces will be relocated into a separate Footnote: "All insulated ceiling surfaces, regardless of slope (e.g., cathedral ceilings, tray ceilings, conditioned attic roof decks, flat ceilings, sloped ceilings), must meet the requirements for ceilings."
00128	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Footnote 6 – Use of bagged batts as an air barrier**
				Issue: Partners have requested that a reminder be added to Policy Record ID 00019 to indicate that when bagged batts (fiberglass batts encapsulated in perforated plastic) are used to insulate basement and crawlspace walls, the plastic bags must be sealed at every seam if the plastic is intended to function as an air barrier.
				Resolution: If plastic bags that encapsulate batt insulation are used as air barriers, they must meet all requirements for an air barrier as defined by Footnote 6: "For purposes of this Checklist, an air barrier is defined as any durable solid material that blocks air flow between conditioned space and unconditioned space, including necessary sealing to block excessive air flow at edges and seams and adequate support to resist positive and negative pressures without displacement or damage. EPA recommends, but does not require, rigid air barriers…If flexible air barriers such as house wrap are used, they shall be fully sealed at all seams and edges and supported using fasteners with caps or heads ≥ 1 in. diameter unless otherwise indicated by the manufacturer. Flexible air barriers shall not be made of kraft paper, paper-based products, or other materials that are easily torn. If polyethylene is used, its thickness shall be ≥ 6 mil." This includes the requirement that all seams be sealed to provide a continuous air barrier.
00129	**01/15/2012**		**Change**	**Footnote 8 – Compressed batts in floors**

		Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)		**Issue:** Footnote 8 allows floors over unconditioned spaces to be insulated with compressed batts for certain configurations, where each acceptable configuration is defined by the nominal R-value of the batt and the depth of the cavity (e.g., R-19 batts in 2x6 cavities). Partners have asked if additional combinations of insulation levels and cavity depths may be used to insulate floors. In addition, several conflicts between these configurations and related requirements of the Checklist have been identified. 1. Compressed batts are not installed according to manufacturer installation guidelines and do not perform at their nominal R-value. Therefore, the R-value of the compressed batts must be accurately assessed in order to determine compliance with Item 2.1, which establishes minimum insulation levels. 2. Item 2.2 requires that floor insulation achieve RESNET-defined Grade I installation or, alternatively, Grade II for surfaces with insulated sheathing. Appendix A of the RESNET Mortgage Industry National Home Energy Rating System Standards clarifies that “No more than 10% of surface area of insulation compressed or incomplete fill, by up to 30% (70% or more of intended thickness) is acceptable for ‘Grade II’.” While compressed batts that are otherwise properly installed do achieve full, permanent contact with the enclosure on all six sides, they are compressed over 100% of their surface area and therefore fail to meet Grade II standards. Accurately assessing the R-value of compressed batts and installing them to meet the intent of Item 2.2 requires that defects unrelated to compressing batts to maintain full contact with their enclosure not be permitted. For example, defects caused by compressing insulation around ducts or piping beyond the level of compression in the rest of the cavity should not be permitted.
				Resolution: Most insulation manufacturers can provide their installers or customers with guidance on the R-value of their product at various rates of compression and on the levels of compression that they do not recommend exceeding. Given the many combinations of batt thicknesses and cavity depths that partners may wish to explore, relying upon this manufacturer guidance will offer more flexibility than providing the prescriptive list of options currently in Footnote 8. To resolve the conflicts related to insulation installation grade, floors will be deemed to meet Item 2.2 so long as the compression caused by excess insulation is the sole defect preventing the insulation from achieving the required installation grade. Footnote 8 will be revised as follows: “Examples of supports necessary for permanent contact include staves for batt insulation or netting for blown-in insulation. Alternatively, batts that completely fill floor cavities enclosed on all six sides may be used to meet Items 2.2 and 3.2, even when compression occurs due to

				excess insulation, as long as the R-value of the batts has been appropriately assessed based on manufacturer guidance and the only defect preventing the insulation from achieving the required installation grade is the compression caused by the excess insulation."
00114	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 3.1.1 – Use of Thermoply as an air barrier**
				Issue: Partners have asked if Thermoply can be used as an air barrier behind tubs and showers to meet the intent of Item 3.1.1, which requires fully-aligned air barriers at walls behind showers and tubs.
				Resolution: Rigid air barriers, including Thermoply, may be used to comply with Item 3.1.1, per Footnote 6: "For purposes of this Checklist, an air barrier is defined as any durable solid material that blocks air flow between conditioned space and unconditioned space, including necessary sealing to block excessive air flow at edges and seams and adequate support to resist positive and negative pressures without displacement or damage." Note, however, that Thermoply does not satisfy the intent of Item 4.2 of the Water Management System Builder Checklist, which requires that cement board or equivalent moisture-resistant backing material be installed on all walls behind tub and shower enclosures composed of tile or panel assemblies with caulked joints. Therefore, if Thermoply is used where such enclosures are located adjacent to exterior walls, it must be coupled with a moisture-resistant backing material to meet the intent of both Items.
00206	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 3.1.1 – Compliance for adiabatic walls in multifamily dwellings**
				Issue: Partners have asked if adiabatic walls in multifamily dwellings behind showers and tubs must comply with Item 3.1.1.
				Resolution: Adiabatic walls in multifamily dwellings behind showers and tubs are not required to comply with Item 3.1.1. Item 5.2.7 requires that, in multifamily buildings, the gap between the drywall shaft wall (i.e. common wall) and the structural framing between units be fully sealed at all exterior boundaries. Because of this sealing requirement, an additional air barrier is not required at adiabatic walls in multifamily dwellings behind showers and tubs. Footnote 10 will be revised as follows: "All insulated vertical surfaces are considered walls (e.g., above and below grade exterior walls, knee walls) and must meet the air barrier requirements for walls, with the exception of adiabatic walls in multifamily dwellings."
00112	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 3.1.3 - Exemption from exterior air barrier for certain short attic knee walls**
				Issue: Partners have asked if the requirement for an exterior air barrier at attic knee walls applies to attic knee walls that are buried in attic floor insulation. Such attic knee walls may be present at small changes in ceiling height such as tray ceilings and soffits.

				Resolution: Exterior air barriers are generally needed in attic knee walls to support the knee wall cavity insulation and to prevent convection and wind washing. However, in short attic knee walls that are supported by adjacent attic insulation, these needs are minimized. Therefore, an exterior air barrier is not required for attic knee walls that are less than or equal to 24 inches in height if an interior air barrier is provided and insulation extends in all directions from the top of this interior air barrier into unconditioned space at the following levels: CZ 1-5: ≥ R-21; CZ 6-8: ≥ R-30. This policy is illustrated in the exhibit below:  To reflect these changes, a new Footnote will be added to Item 3.1.3 to provide this exemption. It will read as follows: "Exterior air barriers are not required for attic knee walls that are ≤ 24 in. in height if an interior air barrier is provided and insulation extends in all directions from the top of this interior air barrier into unconditioned space at the following levels: CZ 1-5: ≥ R-21; CZ 6-8: ≥ R-30."
00626	**09/01/2017**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Item 3.2 – Post-tensioned slabs exempted from insulation requirement**
				Issue: Partners have presented EPA with various specific details that have presented challenges regarding the requirement in Climate Zone 4 and higher to insulate 100% of the slab edge when the slab is on grade. EPA already provides several exemptions, one of which relates to post-tensioned slabs that extend from conditioned to unconditioned space. Partners have recently asked if all post-tensioned slabs have been exempted, or only those that extend from conditioned to unconditioned space.
				Resolution: The rationale for providing the exemption for post-tensioned slabs that extend from conditioned to unconditioned space also applies more generally to all post-tensioned slabs (i.e.,

				the challenge of accessing the tensioning cable anchors behind insulation and due to the movement of the slab during the tensioning process). Therefore, the first exemption on the Slab Edge Insulation Exemption Details document will be retitled to "Exempted Slab Edge Detail 1: Post-Tensioned Slabs" and the exemption will be edited as follows: "The edge of a post-tensioned slab is not required to be insulated to satisfy Item 3.2. Furthermore, for the scenario illustrated in Figure 1, where a continuous post-tensioned slab extends from conditioned to unconditioned space (e.g., from conditioned space to an adjacent unconditioned garage, to a hallway, to a porch), insulation is not required to be provided at this boundary to satisfy Item 3.2. These exemptions are provided because of the challenge of accessing the tensioning cable anchors behind insulation and due to the movement of the slab during the tensioning process. These exemptions apply to both multifamily and single-family homes." EPA will continue to provide exemptions for details where a feasible means to insulate the slab edge has not been identified. Where partners identify such details, they shall provide the detail to EPA to request an exemption prior to the home's certification. EPA will compile exempted details and work with industry to develop feasible details for use in future revisions to the program. A list of currently exempted details is available at: energystar.gov/slabedge. These exemptions will impact the efficiency and comfort of the home; however, EPA is providing them because it has not yet identified a way that insulation can be effectively integrated into the design.
00028	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 3.2.3 – Air barrier requirements for insulated floor above unconditioned crawlspace**
				Issue: Partners have noted that a fully-aligned air barrier should be required for insulated floors above all unconditioned crawlspaces and not just vented crawlspaces, as currently stated.
				Resolution: Section 3 requires a fully-aligned air barrier at each insulated location noted in Item 1.1, 1.2, and 1.3. To clarify that an air barrier is required for insulated floors above all unconditioned crawlspaces, and not just vented crawlspaces, EPA will revise Item 3.2.3 to read as follows: "Floor above unconditioned basement or unconditioned crawlspace".
00207	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 3.3 – Insulation misalignment due to furring strips**
				Issue: In some regions, furring strips (also known as strapping) are attached to the bottom of ceiling joists or rafters and drywall is attached to these furring strips. If batts are then installed, an air space is often created between the insulation and the drywall. Partners have asked if this assembly is in compliance with Item 3.3 if the misalignment occurs.
				Resolution: Assemblies where an air gap is created between the drywall ceiling and an air permeable insulation, such as a fiberglass batt, do not comply with Item 3.3 due to the

				misalignment that is created. Alternate construction methods that eliminate the misalignment and are therefore in compliance with Item 3.3 include, but are not limited to, the following: 1. Notching the batt around each furring strip in order to install the batt such that it is aligned with the drywall between the furring strips. This process must be done carefully to ensure that the insulation grade is not compromised and that the insulation is aligned with both the drywall and the furring strips. 2. Eliminating the furring strips and attaching the drywall directly to the ceiling joists. This construction practice allows batt insulation to be fully aligned with the drywall. Using blown or sprayed insulation to eliminate the air gaps and align the drywall with the insulation.
00208	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 3.3 and 5.1.2 - Sprinkler systems in multifamily buildings**
				Issue: Partners have asked how to comply with Item 3.3, which requires a fully aligned air barrier between ceilings and insulation, and Item 5.1.2, which requires air sealing of plumbing and piping penetrations, in multifamily buildings where fire protection systems are present. In many jurisdictions, code requires that sprinkler lines in unconditioned space be protected from freezing by “tenting” insulation above the line, which creates areas where the insulation is not aligned with the ceiling air barrier below. In addition, in many cases, either the code or the manufacturer does not permit air sealing around the sprinkler head.
				Resolution: Per the guidance on the cover page of the Inspection Checklists regarding conflicting code requirements, “in cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines, then the conflicting requirement within these guidelines shall not be met. Qualification shall only 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.” Therefore, if code requires that insulation shall be tented above the sprinkler pipes, then this code requirement shall be followed, even though it conflicts with Item 3.3. In addition, if code or the manufacturer requires that sprinkler heads shall not be air-sealed, then this code requirement shall be followed, even though it conflicts with Item 5.1.2. Furthermore, EPA has determined that no equivalent option must be followed in order to meet the intent of Item 3.3 and Item 5.1.2. While EPA recommends alternative options, such as moving the sprinklers into conditioned space or conditioning the attic, these alternative options are not required for the home to be certified.
00468	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Section 4 – Transition to Section 3 of the Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the Thermal Enclosure System Rater Checklist, partners

				have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: As part of an overall transition from the Thermal Enclosure System Rater Checklist to the Rater Design Review Checklist and Rater Field Checklist, Section 4 will be moved to Section 3 of the Rater Field Checklist. The overall intent of these new Items will not change significantly. However, the Section has been reformatted due to space considerations, and several clarifications and refinements related to the advanced framing details are detailed in Policy Record Entry 00469.
00115	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Section 4 – Friction-fitted batts in attic bays**
				Issue: Partners have asked whether friction-fitted batts can be installed in attic bays or if a continuous layer of insulation must also be installed to reduce thermal bridging.
				Resolution: There is no requirement to reduce thermal bridging in attics except at attic eaves and under attic platforms. Therefore, friction-fitted batts may be installed in attic bays. It is recommended, but not required, that insulation be used to help reduce thermal bridging through ceiling joists or other framing members at the ceiling interface.
00029	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.1 – Uncompressed insulation extended to exterior wall**
				Issue: Partners have asked whether Item 4.1, which requires uncompressed insulation to extend to the inside face of the exterior wall for insulated ceilings with attic space above, is meant to require that uncompressed insulation extend to the inside face of the exterior wall sheathing or the inside face of the wall assembly.
				Resolution: Due to space constraints at the roof deck-exterior wall interface, uncompressed insulation is only required to extend to the inside face of the exterior wall assembly, not the inside face of the exterior wall sheathing.
00116	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Change**	**Item 4.1 – Reduced thermal bridging at attic eaves**
				Issue: Partners have advised EPA that, while many homes permitted beginning January 1, 2012 will be able to fully comply with Item 4.1, plans for certain homes will need to be redesigned in part or in full to achieve compliance and that this redesign process will require additional time. Further complicating the implementation timeline for this Item is the fact that several key structural parameters of Southern Pine lumber are being reassessed by the American Lumber Standards Committee. Changes to these values would necessitate a redesign of many roof systems.

				Therefore, an extended implementation timeline for this Item would allow for a single redesign process to both provide adequate clearance for insulation and accommodate the latest structural parameters. Furthermore, partners have noted that requiring "Grade I" insulation in place of "uncompressed" insulation will better align with established terminology and more clearly convey the intent of this Item.
				Resolution: Based on partner feedback about the feasibility of implementing Item 4.1, full compliance with this requirement will not be required for homes permitted before January 1, 2013. Homes permitted before that date in Climate Zones 1 through 5 shall instead have at least R-15 Grade I insulation in spaces that provide less than 5.5 inches of clearance. For spaces that provide 5.5 inches or more of clearance, at least R-21 Grade I insulation shall be provided. Homes permitted before that date in Climate Zones 6 through 8 shall instead have at least R-21 Grade I insulation in spaces that provide less than 7.0 inches of clearance. For spaces that provide 7.0 inches or more of clearance, at least R-30 Grade I insulation shall be provided. Item 4.1 will be revised to read: "For insulated ceilings with attic space above (i.e., non-cathedralized), Grade I insulation extends to the inside face of the exterior wall below at these levels: CZ 1 to 5: ≥ R-21; CZ 6 to 8: ≥ R-30." Footnote 11 will be revised to read: "The minimum designated R-values must be achieved regardless of the trade-offs determined using an equivalent U-factor or UA alternative calculation, with the following exception: *"For homes permitted through 12/31/2012:* CZ 1-5: For spaces that provide less than 5.5 in. of clearance, R-15 Grade I insulation is permitted. CZ 6-8: For spaces that provide less than 7.0 in. of clearance, R-21 Grade I insulation is permitted. *"For homes permitted on or after 01/01/2013:* Homes shall achieve Item 4.1 without exception. Note that if the minimum designated values are used, then higher insulation levels may be needed elsewhere to meet Item 2.1. Also, note that these requirements can be met by using any available strategy, such as a raised-heel truss, alternate framing that provides adequate space, and / or high-density insulation."
00117	**01/15/2012**	**Thermal Enclosure System Rater**	**Clarification**	**Item 4.1 – Minimum attic insulation levels**
				Issue: Partners have asked if the minimum insulation levels specified in Item 4.1 must be met throughout the attic or only at the inside face of the exterior wall below.

		Checklist (Version 3, Rev. 04)		**Resolution:** Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall below. It does not define a minimum insulation level that must be met throughout the attic. Only Item 2.1 defines the insulation levels that are applicable to the overall attic. This Item requires that all ceiling, wall, floor, and slab insulation levels meet or exceed 2009 IECC levels. Footnote 3 explains how to meet this intent and addresses how this approach relates to the requirements for reduced thermal bridging in Items 4.1 through 4.3. Footnote 3d will be revised as follows to more clearly explain the constraints on trade-offs imposed by Items 4.1 through 4.3: "…Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Checklist shall be met regardless of the UA tradeoffs calculated..."
00209	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 4.1 – Explanation of intent behind insulation requirements at attic eaves**
				Issue: Partners have asked for an explanation of the difference between Item 4.1, which requires that "for insulated ceilings with attic space above, Grade 1 insulation extends to the inside face of the exterior wall.." and Section 402.2.1 of the 2009 IECC, which requires that insulation in this location extend "over the wall top plate at the eaves".
				Resolution: To minimize heat transfer through the attic-ceiling interface, full-height uncompressed insulation should extend over the top plate. However, this can be a challenge to achieve due to space constraints. While Section 402.2.1 of the 2009 IECC includes a prescriptive insulation requirement for full-height uncompressed insulation to extend over the top plate, builders are permitted to install less insulation, or no insulation at all, at the top plate when using a U-factor alternative to demonstrate code compliance. In contrast, Item 4.1 of the Checklist defines minimum insulation levels that must be achieved at the inside face of the exterior wall below for all homes, regardless of U-factor alternative calculations. The "inside face of the exterior wall below" was defined as the location where this must be achieved because of the ease with which it can be verified. While Item 4.1 does not explicitly require insulation to extend beyond this location, for many homes this will occur regardless due to the manner in which insulation is commonly installed.
00030	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.2 – Slab edge insulation levels**
				Issue: Partners have asked why there appears to be a discrepancy between Item 4.2 and the Thermal Enclosure System Rater Checklist Guidebook that was updated on 03/23/2011. The checklist states that for slabs on grade in Climate Zone 4 and higher, 100% of the slab edge shall be insulated to greater than or equal to R-5, while the guidebook includes a table on page 92 that implies a required insulation level of R-10.

				Resolution: Item 2.1 of the Checklist requires that ceiling, wall, floor, and slab insulation levels meet or exceed the 2009 IECC. One way to demonstrate compliance with this requirement is to use an alternative equivalent total UA calculation. This approach allows insulation to be traded off among assemblies (e.g., insulation can be moved from the walls to the ceiling, from the slab to the wall). This may result in a home where the insulation in one insulated component is less than the prescriptive value while another insulated component has more than the prescriptive value (e.g., the slab may have less than R-10 insulation, while the ceiling has more than R-38). A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 complies with Item 2.1. While ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in items 4.1 through 4.3 of the checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated. It is for this reason that there are references to both R-5 and R-10 slab insulation levels. The value of R-10 represents the component insulation requirement for slabs in Climate Zones 4 and higher. This value is to be met or exceeded when trade-off calculations are not used. In contrast, the value of R-5 represents the minimum slab insulation level allowed in these climate zones when UA trade-off calculations are used.
00031	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Change**	**Item 4.2 – Challenging slab edge insulation details**
				Issue: Partners have presented EPA with various specific details that have presented challenges regarding the requirement in Climate Zone 4 and higher to insulate 100% of the slab edge when the slab is on grade. EPA already provides two exemptions related to post-tensioned slabs. Partners have recently asked about the following additional details: • For stucco wall systems, can areas be exempted where weep screeds at the bottom of the wall lay flush with the foundation slab? • Can the existing exemption for post-tensioned slabs with integrated garage foundations in multifamily buildings be extended to townhomes? • Can a post-tensioned slab that spans a conditioned space and an adjacent unconditioned hallway in a multi-family structure be exempted? • Can a monolithic slab with a brick ledge be exempted? • Can termite view strips be exempted?
				Resolution: EPA is willing to provide additional exemptions for Item 4.2 for details where a feasible means to insulate the slab edge has not been identified. However, where partners identify such details, they shall provide the detail to EPA to request an exemption prior to the home's qualification. EPA will compile exempted details and work with industry to develop feasible details for use in future revisions to the program. These exemptions will impact the

				efficiency and comfort of the home; however, EPA is providing them because it has not yet identified a way that insulation can be effectively integrated into the design. With regards to the partner questions above: • EPA believes that walls can be designed such that the weep screed rests upon slab insulation rather than directly on the foundation. For example, the sheathing of the exterior wall can be aligned in the same plane as the foundation insulation, providing a continuous insulated surface. Therefore, EPA will require insulation to extend behind the weep screed to satisfy the intent of Item 4.2. • EPA will extend the exemption regarding post-tensioned slabs. Where a continuous post-tensioned slab extends from conditioned to unconditioned space (e.g., from conditioned space to an adjacent unconditioned hallway, to an unconditioned garage, to a porch), insulation is not required to be provided at this boundary to satisfy Item 4.2. This exemption applies to both multifamily and single-family homes. • EPA will not require the horizontal brick ledge of monolithic slabs to be insulated in order to satisfy the intent of Item 4.2. However, the vertical surface on either side of the ledge shall be insulated. Furthermore, floating slabs with brick ledges are not exempted because the insulation layer can be moved to the interior vertical surface of the foundation. • Homes that have uninsulated termite view strips due to code requirements satisfy the intent of Item 4.2. The last sentence of Footnote 5 of the checklist will be revised as follows: “Where specific details cannot meet this requirement, partners shall provide the detail to EPA to request an exemption prior to the home’s qualification. EPA will compile exempted details and work with industry to develop feasible details for use in future revisions to the program.”
00283	**12/31/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 4.2 - Slab edge insulation alternative for existing homes**
				Issue: Partners certifying existing homes have expressed concern that this requirement would require excavation around, or removal of, the slab, which is not typically within the scope even for a gut rehabilitation. If the slab edge is not already insulated, the perimeter around the slab would need to be excavated or the slab itself removed and replaced to add the required insulation.
				Resolution: Uninsulated sections of slabs create thermal bridges that reduce the efficiency of the thermal enclosure system and can impact the comfort of the home. Insulating 100% of the slab edge eliminates these thermal bridges. To meet this same intent, rigid insulation ≥ R-3 is permitted to be installed on top of an existing slab prior to the installation of the flooring. To reflect this alternative, the following will be added to the end of Footnote 4:

				"Alternatively, the thermal break is permitted to be created using ≥ R-3 rigid insulation on top of an existing slab (e.g., in a home undergoing a gut rehabilitation). In such cases, up to 10% of the slab surface is permitted to not be insulated (e.g., for sleepers, for sill plates). Insulation installed on top of slab shall be covered by a durable floor surface (e.g., hardwood, tile, carpet)."
00765	**09/01/2018**	**Rater Design Review Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Item 4.2.1 – Design temperature limits added for US Territories**
				Issue: The Design Temperature Limit Reference Guide was updated to include design temperature limits for US Territories, in addition to the limits already included for counties and states. Currently, Item 4.2.1 only references counties and states.
				Resolution: The reference to 'State and County' in Item 4.2.1 will be updated to read 'State and County, or US Territory' to reflect the inclusion of territories in the Design Temperature Limit Reference Guide.
00583	**06/03/2016**	**Rater Design Review Checklist (Version 3 / 3.1, Rev. 08)**	**Change**	**Item 4.2.3 - Increased Tolerance for Conditioned Floor Area used in HVAC Design Report**
				Issue: Partners have noted an issue with the allowable tolerance between the conditioned floor area used in loads and that of the home to be certified. The allowable tolerance does not permit the conditioned floor area used in the loads to be any smaller than the home to be certified, even when such a deviation will not significantly affect the load. For example, if the designer calculates conditioned floor area by measuring from the interior drywall to interior drywall, while the Rater measures from the exterior to the exterior, the designer will end up with a smaller conditioned floor area, resulting in a failure despite negligible impacts on the load calculation.
				Resolution: The tolerance will be changed to allow the conditioned floor area used in loads to fall between 100 sq. ft smaller and 300 sq. ft. larger than the home to be certified. This change recognizes that if the conditioned floor area used in the loads is slightly smaller than the home to be certified, the overall accuracy of the load will not be greatly compromised. To reflect this change, Item 4.2.3 will be revised to read: "Conditioned floor area used in loads (3.5) is between 100 sq. ft smaller and 300 sq. ft. larger than the home to be certified"
00663	**06/29/2018**	**Rater Design Review Checklist (Version 3 / 3.1, Rev. 08)**	**Change**	**Item 4.2.4 - Increased tolerance for window area used in HVAC Design Report**
				Issue: Partners have noted two issues with the allowable tolerance between the window area used in loads and that of the home to be certified. The first issue is that the low-end tolerance does not permit the window area used in the loads to be any smaller than the home to be certified, even when such a deviation will not significantly affect the load. For example, if the designer calculates the load with even one less

				sq. ft. of window area than what the home to be certified contains (e.g., due to an imprecise take-off), then the home would not strictly meet the intent of this item. The second issue is that as the window area in the home increases, the fixed tolerances become increasingly restrictive. That is to say, while the high-end tolerance of 60 sq. ft. may be routinely achievable for a typical home, as the window area increases the 60 sq ft. tolerance becomes a smaller percentage of the overall window area. Outreach was conducted with multiple partners in different climate zones. Partners indicated that it would be helpful to increase the low-end tolerance to allow the window area used in the loads to be slightly smaller than the home to be certified. Partners also indicated that adding a percent-based tolerance would be helpful to address the second issue
				Resolution: The tolerance will be changed to allow the window area used in loads to fall between 15 sq. ft. smaller and 60 sq. ft. larger than the home to be certified. This change recognizes that if the window area used in the load calculations is slightly smaller than the home to be certified, the overall accuracy of the load will not be greatly compromised. Additionally, for homes to be certified with greater than 500 sq. ft. of window area, the tolerances will be changed to use a percentage of window area. To reflect this change, Item 4.2.4 will be revised to read: "Window area used in loads (3.6) is between 15 sq. ft. smaller and 60 sq. ft. larger than the home to be certified, or, for homes to be certified with > 500 sq. ft. of window area, between 3% smaller and 12% larger"
00032	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 4.4 – Applicability of reduced thermal bridging requirements to various wall types**
				Issue: Partners have asked EPA to clarify whether Item 4.4, which requires reduced thermal bridging at walls, applies to common walls that separate conditioned spaces, to below-grade exterior walls, to attic knee walls, and to mass walls.
				Resolution: The intent of this item is to improve the resistance of walls to heat transfer by eliminating thermal bridging. Reduced thermal bridging ensures more efficient wall construction and improves occupant comfort. Because heat transfer is driven by the temperature differential between adjacent spaces, Item 4.4 was designed for walls separating conditioned space from unconditioned space and limited to above-grade walls where the temperature differential is the greatest. Therefore: • This item applies to all above-grade walls separating conditioned space from unconditioned space, including attic knee walls; • This item does not apply to common walls between attached housing units or to other walls that separate two conditioned spaces; • This item does not apply to below-grade walls, including foundation walls;

				• This item applies to mass walls, except mass walls that are part of a passive solar design. Compliance options are explained in the revision, below. To reflect these clarifications, this item will be revised as follows: "Reduced thermal bridging at above-grade walls separating conditioned from unconditioned space (rim/band joists exempted) using one of the following options:" A new footnote will be added to this item, as follows: "Mass walls utilized as the thermal mass component of a passive solar design (e.g., a Trombe wall) are exempt from this item. To be eligible for this exemption, the passive solar design must be comprised of the following five components: an aperture or collector, an absorber, thermal mass, a distribution system, and a control system. For more information, see: http://www.energysavers.gov/your_home/designing_remodeling/index.cfm/mytopic=10270. "Mass walls that are not part of a passive solar design (e.g., CMU block or log home enclosure) shall either utilize the strategies outlined in Section 4.4 or the pathway in the assembly with the least thermal resistance shall provide ≥ 50% of the applicable component insulation requirement in the 2009 IECC – Table 402.1.1."
00033	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Change**	**Footnote 8 – Thermal bridging requirement exemption for architectural features**
				Issue: Partners have asked EPA to relocate Footnote 8, which provides an exemption of up to 10% of total exterior wall surface area from the reduced thermal bridging requirements, to Item 4.4 to improve clarity. Additionally, partners have asked whether wall sections with thermal bridging could qualify for this exemption for reasons other than architectural details (e.g., structural steel columns in walls, defective insulation installation).
				Resolution: EPA will relocate Footnote 8 to Item 4.4. EPA will also revise the Footnote to clarify that this exemption applies to any designed detail (i.e., intentional rather than unintentional design decision). The revised footnote will read as follows: "Up to 10% of the total exterior wall surface area is exempted from the reduced thermal bridging requirements to accommodate intentional designed details (e.g., architectural details such as thermal fins, wing walls, or masonry fireplaces; structural details, such as steel columns). It shall be apparent to the Rater that the exempted areas are intentional designed details or the exempted area shall be documented in a plan provided by the builder, architect, designer, or engineer. The Rater need not evaluate the necessity of the designed detail to qualify the home."
00034	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.4 – Reduced thermal bridging using double-wall framing**
				Issue: Partners have asked EPA to determine whether a wall constructed with 2x6 top and sill plates, staggered 2x4 studs with 12" on-center spacing, and dense packed cavity insulation would meet the intent of Item 4.4.

				Resolution: Footnote 15 provides the definition of double-wall framing, which would encompass the technique described above: "Double-wall framing is defined as any framing method that ensures a continuous layer of insulation covering the studs to at least the R-value required in Item 4.4.1 of the checklist, such as offset double-stud walls, aligned double-stud walls with continuous insulation between the adjacent stud faces, or single-stud walls with 2x2 or 2x3 cross-framing. In all cases, insulation shall fill the entire wall cavity from the interior to exterior sheathing except at windows, doors and other penetrations." Therefore, this technique would meet the intent of Item 4.4, as long as a continuous layer of insulation covered the studs to at least the minimum insulation value listed in Item 4.4.1.
00035	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.4 – Use of 2x4 walls in CZ 5-8**
				Issue: Partners have asked about the reduced thermal bridging requirement for walls outlined in Item 4.4. Specifically, partners have asked for confirmation that 2x4 framing with 16" on-center spacing in Climate Zones 5-8 is an acceptable practice.
				Resolution: To meet the reduced thermal bridging requirements for walls, the builder may use any one of the strategies listed in Items 4.4.1 through 4.4.5, or a combination of these strategies. If Item 4.4.5 is chosen, the builder must comply with all requirements listed in Items 4.4.5a – 4.4.5e. The use of 2x4 framing with 16" on-center spacing complies with Item 4.4.5e in every climate zone. However, if this option is chosen, the builder must also meet all requirements outlined in Items 4.4.5a – 4.4.5d in order to completely fulfill the requirements of Item 4.4. Also, note that Item 2.1 of the checklist requires that ceiling, wall, floor, and slab insulation levels meet or exceed the 2009 IECC. Therefore, additional insulation will likely need to be added to the non-wall assemblies in order to meet this item.
00210	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 4.4 – Combined use of reduced thermal bridging techniques in a single home**
				Issue: Partners have asked if the reduced thermal bridging techniques allowed under Item 4.4 are permitted to be mixed and matched within the same home. Specifically, they have asked if continuous rigid insulation can be used for the majority of the above-grade walls, but a different strategy such as advanced framing used in areas where rigid insulation may be difficult to install.
				Resolution: Different strategies to reduce thermal bridging are permitted to be combined in the same home, and even the same wall. For example, continuous rigid insulation may be used for the majority of a wall, while advanced framing may be used for areas where it is difficult to install continuous rigid insulation.

00036	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Refinement**	**Footnote 13 – Insulated siding and sheathing errata**
				Issue: Partners have noted that the footnote describing the use of insulated siding and insulated sheathing as water resistive barriers has inadvertently interchanged the two terms relative to prior revisions.
				Resolution: To improve clarity, the footnote will be revised as follows: "If used, insulated siding shall be attached directly over a water-resistive barrier and sheathing. In addition, it shall provide the required R-value as demonstrated through either testing in accordance with ASTM C 1363 or by attaining the required R-value at its minimum thickness. Insulated sheathing rated for water protection can be used as a water resistant barrier if all seams are taped and sealed. If non-insulated structural sheathing is used at corners, advanced framing details listed under Item 4.3.5 shall be met for those wall sections."
00095	**10/13/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Footnote 13 – Reduced thermal bridging in mass walls**
				Issue: Partners have raised a question regarding the reduced thermal bridging requirements for mass walls that are not part of a passive solar design. Specifically, partners have asked if the thermal resistance of each material in the mass wall assembly is permitted to contribute to the component insulation level referenced in Footnote 13 of the Checklist ("... shall provide ≥ 50% of the applicable component insulation requirement in the 2009 IECC..") or if only some subset of insulating materials may be used to meet this requirement.
				Response: The thermal resistance of each material in the mass wall assembly is permitted to contribute towards meeting the intent of this requirement. In order to clarify this intent, the second paragraph of Footnote 13 of the Checklist will be revised to reference the mass wall equivalent U-factors defined in Table 402.1.3 of the 2009 IECC rather than the component insulation requirements defined in Table 402.1.1 of the 2009 IECC. The second paragraph of the footnote will be revised to read as follows: "Mass walls that are not part of a passive solar design (e.g., CMU block or log home enclosure) shall either utilize the strategies outlined in Section 4.4 or the pathway in the assembly with the least thermal resistance, as determined using a method consistent with the 2009 ASHRAE Handbook of Fundamentals, shall provide ≥ 50% of the applicable assembly resistance, defined as the reciprocal of the mass wall equivalent U-factor in the 2009 IECC – Table 402.1.3." For example, in CZ 2, the inverse of the mass wall equivalent U-factor in the 2009 IECC – Table 402.1.3 is 1 / 0.165 = 6.06. As long as the path through the assembly with the least resistance provides at least 50% of this value (i.e., R-3.0), then the mass wall would meet the intent of the thermal bridging requirements in Item 4.4 of this Checklist. The resistance of the path would be determined using a method consistent with the 2009 ASHRAE Handbook of Fundamentals, such that air layers and all other assembly layers are included.

00130	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Footnote 13 – Reduced thermal bridging for mass walls not part of passive solar designs**
				Issue: Partners have asked two questions regarding the reduced thermal bridging requirements for mass walls that are not part of a passive solar design. First, partners have asked whether the thermal resistance of each material in the mass wall assembly is permitted to contribute to the component insulation level referenced in Footnote 13 of the Checklist ("... shall provide ≥ 50% of the applicable component insulation requirement in the 2009 IECC…") or if only some subset of insulating materials may be used to meet this requirement. Second, partners have asked if the component insulation level must be met strictly through the nominal resistance of the components or if thermal mass effects can also contribute towards meeting this requirement.
				Resolution: The nominal thermal resistance of each material in the mass wall assembly is permitted to contribute towards meeting the intent of this requirement. Thermal mass effects are not permitted to contribute towards meeting this requirement. In order to clarify this intent, the second paragraph of Footnote 13 will be revised to reference the mass wall equivalent U-factors defined in Table 402.1.3 of the 2009 IECC rather than the component insulation requirements defined in Table 402.1.1 of the 2009 IECC. The revised Footnote will also refer to the ASHRAE Handbook of Fundamentals as the basis for calculating the thermal resistance of the assembly. The second paragraph of the Footnote will be revised to read: "Mass walls that are not part of a passive solar design (e.g., CMU block or log home enclosure) shall either utilize the strategies outlined in Item 4.4 or the pathway in the assembly with the least thermal resistance, as determined using a method consistent with the 2009 ASHRAE Handbook of Fundamentals, shall provide ≥ 50% of the applicable assembly resistance, defined as the reciprocal of the mass wall equivalent U-factor in the 2009 IECC – Table 402.1.3. Documentation identifying the pathway with the least thermal resistance and its resistance value shall be collected by the Rater and any Builder Verified or Rater Verified box under Item 4.4 shall be checked." For example, in CZ 2, the reciprocal of the mass wall equivalent U-factor in the 2009 IECC – Table 402.1.3 is 1 / 0.165 = 6.06. As long as the path through the assembly with the least resistance provides at least 50% of this value (i.e., R-3.0), then the mass wall would meet the intent of the thermal bridging requirements in Item 4.4 of this Checklist. The resistance of the path would be determined using a method consistent with the 2009 ASHRAE Handbook of Fundamentals, such that air layers and all other assembly layers are included.
00131	**01/15/2012**		**Refinement**	**Footnote 15 – Corrected reference to a Checklist Item**

		Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)		**Issue:** Partners have noted that the reference in this Footnote does not align with the terminology used in the Checklist.
				Resolution: To improve clarity, the phrase “Section 4.4.1” will be revised to read “Item 4.4.1”.
00469	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 4.4.5 – Application of advanced framing details to multifamily dwelling units**
				Issue: Partners have noted that some advanced framing details may not be feasible in certain multifamily dwelling units due to the unique structural requirements of that sector. For example, spacing of studs closer than 16” on-center may be required for the lower stories in a 4 or 5 story wood-framed building and connections between interior and exterior walls may require connections for shear strength that limit the amount of insulation able to be installed. While this Item already contains exemptions from several of the advanced framing details when structural issues arise, other details do not contain exemptions. Partners have asked that the exemption be made applicable to all of the advanced framing details in cases where structural issues arise.
				Resolution: To address advanced framing details that may not be feasible in certain multifamily dwelling units due to unique structural requirements, the existing exemptions for specific advanced framing details will be consolidated into a single over-arching Footnote, referenced by Item 4.4.5 as follows: “All advanced framing details shall be met except where the builder, architect, or engineer provides a framing plan that encompasses the details in question, indicating that structural members are required at these locations and including the rationale for these members (e.g., full-depth solid framing is required at wall corners or interior / exterior wall intersections for shear strength, a full-depth solid header is required above a window to transfer load to jacks studs, additional jack studs are required to support transferred loads, additional cripple studs are required to maintain on-center spacing, or stud spacing must be reduced to support multiple stories in a multifamily building). The Rater shall retain a copy of the detail and rationale for their records, but need not evaluate the rationale to certify the home.” Existing language related to this exemption in Footnote 19 will be removed, and the revised Footnote will read as follows: “Compliance options include continuous rigid insulation sheathing, SIP headers, other prefabricated insulated headers, single-member or two-member headers with insulation either in between or on one side, or an equivalent assembly. R-value requirement refers to manufacturer’s nominal insulation value.” Finally, Footnote 20 will be removed, as the explanation of when more jack studs or cripple studs might be needed will be included in the new Footnote.
00316	**06/01/2013**		**Change**	**Item 4.4.5 – Improved clarity of reduced thermal bridging requirements**

		Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)		**Issue:** Partners have noted that Item 4.4.5 contains several requirements that may be misinterpreted: • The exemption in Footnote 12, which states "up to 10% of the total exterior wall surface area is exempted from the reduced thermal bridging requirements to accommodate intentional design details, (e.g., architectural details such as thermal fins, wing walls, or masonry fireplaces; structural details, such as steel columns)…", could be interpreted either as applying to each Sub-Item 4.4.5a-4.4.5e or applying to Item 4.4.5 as a whole and therefore allowing a partner to not complete Sub-Items that add up to less than 10% of the surface area. • Item 4.4.5b does not state within the Item the required insulation levels for headers. This information can only be found in Footnote 18. Item 4.4.5c does not state what is meant by 'limited framing' within the Item. This information can only be found in Footnote 19.
				Resolution: The following clarifications will be made to Item 4.4.5 to reduce misinterpretations: • The exemption of up to 10% of the total exterior wall surface area from the reduced thermal bridging requirements in Footnote 12 is only intended to be applied to Items 4.4.1 through 4.4.4. This is because each of the Sub-Items in Item 4.4.5 can either be completed even when intentional design details (e.g., architectural details such as thermal fins, wing walls, or masonry fireplaces; structural details, such as steel columns) are present, or already have exemptions to accommodate such details (i.e., Items 4.4.5b and 4.4.5e). To clarify this intent, the reference to Footnote 12 will be removed from Item 4.4 and relocated to Items 4.4.1, 4.4.2, 4.4.3, and 4.4.4. As a result, Footnotes 12 and 13 will be renumbered to maintain sequential numbering. • To improve the frequency with which the required insulation levels are met in Item 4.4.5b, the insulation levels specified in Footnote 18 will be relocated to Item 4.4.5b as follows: "All headers above windows & doors insulated ≥ R-3 for 2x4 framing or equivalent cavity width, and ≥ R-5 for all other assemblies (e.g., with 2x6 framing)" As a result, the first sentence of Footnote 18, which defined the minimum required insulation levels, will be removed. • To improve the frequency with which the intent of "limited framing" is met in Item 4.4.4c, the relevant guidance from Footnote 19 will be relocated to Item 4.4.4c as follows: "Framing limited at all windows & doors to one pair of king studs, plus one pair of jack studs per window opening to support the header and sill"

				Footnote 19 will be revised to read: "Additional jack studs shall be used only as needed for structural support and cripple studs only as needed to maintain on-center spacing of studs."
00037	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.4.5a – Framing fractions related to advanced framing practices**
				Issue: Partners have asked where to find standard framing fractions for various stud spacing distances, specifically those in Item 4.4.5e.
				Resolution: EPA does not provide default framing fraction values. Raters wishing to use default values should refer to the guidance provided in the RESNET 2006 Mortgage Industry National Home Energy Rating Standard, available at the following link: http://www.resnet.us/standards. Additionally, partners may wish to calculate the fraction for a specific home using its framing plan.
00118	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 4.4.5b – Uninsulated full-depth headers**
				Issue: Item 4.4.5b and Footnote 18 require that all headers above doors and windows be insulated, except where a framing plan provided by the builder, architect, designer, or engineer indicates that full-depth solid headers are the only acceptable option. Partners have asked if uninsulated full-depth headers can be used to meet the intent of Item 4.4.5b even if other header options are viable. Because full-depth headers can bear larger loads, the height of these products may be less than that of headers that are not full-depth, particularly for engineered wood products. As a result, the wall area available for full-depth insulation may be increased, even though the header itself is not insulated.
				Resolution: Uninsulated full-depth headers are permitted to be used to meet the intent of Item 4.4.5b, even if other header options are viable. Footnote 18, which clarifies Item 4.4.5b, will be revised to read as follows: "Header insulation shall be ≥ R-3 for wall assemblies with 2x4 framing, or equivalent cavity width, and ≥ R-5 for all other assemblies (e.g., with 2x6 framing). Compliance options include continuous rigid insulation sheathing, SIP headers, other prefabricated insulated headers, single-member or two-member headers with insulation either in between or on one side, or an equivalent assembly, except where a framing plan provided by the builder, architect, designer, or engineer indicates that full-depth solid headers are to be used. The Rater need not evaluate the structural necessity of the details in the framing plan to qualify the home. Also, the framing plan need only encompass the details in question and not necessarily the entire home. R-value requirement refers to manufacturer's nominal insulation value."
00038	**07/25/2011**	**Thermal Enclosure System Rater**	**Change**	**Footnote 17 – Insulated header R-value requirements**
				Issue: EPA has identified an unintended barrier to meeting the insulated header requirements in this checklist. Item 4.4.5b requires that partners insulate headers above windows and doors

		Checklist (Version 3, Rev. 03)		to at least R-5 in Climate Zones 5 through 8. While many partners in these climate zones are using 2x6 wall assemblies or 2x4 wall assemblies with insulated sheathing, several partners expressed difficulty meeting this requirement because of their use of 2x4 wall assemblies without insulated sheathing. For such wall assemblies, space constraints make it difficult to achieve the required insulation level. EPA defined the requirement for R-5 header insulation in Climate Zones 5 through 8 assuming that builders in these regions would be using 2x6 framing, 2x4 framing with insulated sheathing, or other advanced assemblies in order to meet the 2009 IECC insulation levels required in Item 2.1. While this is true for many partners, some are using 2x4 wall assemblies without insulated sheathing. By using high-density insulation products and increased insulation in other assemblies, they are still able to meet the 2009 IECC insulation requirements using a UA approach. For these 2x4 assemblies, there is typically not enough space to incorporate R-5 insulation at the header.
				Resolution: The beginning of Footnote 17 will be revised to define minimum insulation levels based upon assembly thickness, rather than climate zone, as follows: "Header insulation shall be ≥ R-3 for wall assemblies with 2x4 framing, or equivalent cavity width, and ≥ R-5 for all other assemblies (e.g., with 2x6 framing). Compliance options include continuous rigid insulation sheathing..."
00119	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 4.4.5d – Compressed insulation behind ladder framing**
				Issue: Partners have asked if the intent of Item 4.4.5d ("All interior / exterior wall intersections insulated to the same R-value as the rest of the exterior wall") is satisfied even when ladder framing compresses the insulation at the interior/exterior wall intersection. For example, if "2x" framing is used to create the ladder and the "2x" dimension is oriented horizontally, then the insulation will be compressed by 1.5 in. and its effective R-value reduced below that of the rest of the exterior wall insulation.
				Resolution: Installing insulation with the same nominal R-value as the insulation in the rest of the exterior wall meets the requirements of Item 4.4.5d, even if it is compressed behind ladder framing. Note, however, that the overall exterior wall must still meet the insulation installation requirement of Item 2.2. The intent of this requirement is to ensure that insulation is installed in the cavity created by the intersection of an interior wall and an exterior wall. Typically, this intersection is filled entirely with vertical studs or is left completely uninsulated, which creates a significant thermal bridge. Insulation installed with the same nominal R-value as the rest of the exterior wall will generally represent an improvement over typical building practice, even if some compression occurs.
00429	**05/01/2014**	**Thermal Enclosure System Rater**	**Change**	**Item 4.4.5e – Removal of requirement for 24" o.c. spacing or R-20 cavity insulation in CZ 5**

		Checklist (Version 3, Rev. 07)		**Issue:** Partners have expressed difficulty complying with the requirements of Item 4.4.5e, which requires in part that homes in Climate Zones 5 through 8 using 2x6 framing place studs 24'' on-center or, per Footnote 22, use 2x6 framing with 16" o.c. stud spacing plus R-20 cavity insulation. These partners have suggested that the use of 2x4 framing with 16" on-center spacing and R-13 or R-15 cavity insulation is still standard practice in many parts of Climate Zone 5. While this wall assembly would not satisfy the requirements of the ENERGY STAR Certified Homes program, upgrading a wall system to 2x6 framing is a significant investment in, and improvement of, the thermal enclosure system relative to this practice. Therefore, partners have suggested that the additional requirement for 24" on-center spacing or R-20 cavity insulation acts as a deterrent to upgrading to 2x6 framing. Furthermore, advanced insulation products capable of achieving R-20 cavity insulation still incur a substantial cost increase in markets were such products are not yet commonplace. Primarily for these two reasons, partners have requested that the requirement to use 24" on-center spacing or R-20 cavity insulation for walls with 2x6 framing be removed from Climate Zone 5. Note that no challenges have been identified to meeting this requirement in Climate Zones 6 through 8, where 2x6 framing is more commonplace.
				Resolution: To address the partner concerns cited above about the requirements in Item 4.4.5e for homes with 2x6 framing in Climate Zone 5, this Item will be revised by removing these requirements only in Climate Zone 5. To reflect this change, the Climate Zones referenced in Item 4.4.5e will be revised as follows: "Minimum stud spacing of 16 in. o.c. for 2x4 framing in all Climate Zones and, in Climate Zones 6 through 8, 24 in. o.c. for 2x6 framing". In addition, the Climate Zones in Footnote 22 will be revised as follows: "In Climate Zones 6 - 8, a minimum stud spacing of 16 in. o.c. is permitted to be used with 2x6 framing if ≥ R-20.0 wall cavity insulation is achieved. However, all 2x6 framing with stud spacing of 16 in. o.c. in Climate Zones 6 - 8 shall have ≥ R-20.0 wall cavity insulation installed regardless of any framing plan or alternative equivalent total UA calculation." Note that despite this change, homes are still required to meet the insulation levels defined in Item 2.1. Therefore, homes using R-19 cavity insulation in Climate Zone 5 may need make improvements in the other insulated assemblies or the fenestration to meet Item 2.1.
00039	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.4.5e – Rater verification of stud spacing for advanced framing**
				Issue: Partners have asked about the proper course of action when a Rater finds a framing element that does not have a clear structural purpose. Partners have also asked what course of action should be taken when the architect insists on a framing plan that does not meet the advanced framing requirements in Item 4.4.5.

				Resolution: In both cases, as per Footnote 20 of the checklist, the Rater should collect a framing plan from the builder, architect, designer, or engineer that encompasses the detail in question. With regards to framing plans that do not meet Item 4.4.5, EPA cannot place Raters in a position where they are asked to overrule the judgment of builders, architects, designers, or engineers on structural matters. For this reason, EPA does not require the Rater to evaluate the structural necessity of the details in the framing plan to qualify the home. Instead the Rater is advised to educate and collaborate with the builder to develop alternative strategies that do meet the intent where possible. Ultimately, the Rater has the ability to withhold the label and may choose to do so in cases where the Rater believes that there is a systematic attempt to circumvent the intent of this item. The Rater can also consult with their Provider and with EPA in such cases. EPA has included advanced framing details as one effective and low-cost means to reduce thermal bridging. However, if this option is not implemented properly on a consistent basis, EPA will need to consider whether to remove this option in future versions of the program guidelines.
00188	**04/20/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Change**	**Item 4.4.5e – Minimum stud spacing for advanced framing** **Issue:** Policy Record ID 00429 contains the most recent resolution of this issue. This issue (ID 00188) is only being retained to maintain a complete Policy Record. Item 4.4.5e requires 24” on-center stud spacing in Climate Zones 5 - 8 for partners using the advanced framing strategy to reduce thermal bridging in 2x6 wood frame walls. An exemption from the 24” on-center spacing requirement is provided in Footnote 21 if alternate spacing is serving a structural purpose and a framing plan is provided by the builder, architect, designer, or engineer. Per Footnote 21, the Rater need not evaluate the structural necessity of the details in the framing plan to qualify the home. ENERGY STAR partners have responded to these requirements and allowances in several ways: • Some partners have implemented this requirement and have produced efficient wall assemblies with reduced thermal bridging as was originally intended. • Some partners have circumvented this requirement using the exemption. Partners have suggested that the exemption has been used for a variety of reasons, ranging from the intended (e.g., for structural reasons) to the unintended (e.g., to avoid the cost of redesigning framing plans or due to perceived quality concerns about 24” on-center spacing). • Some partners have circumvented this requirement by using 2x4 studs, which results in the installation of less wall cavity insulation and more thermal bridging than originally intended. • Some partners have made plans to leave the program altogether to avoid this detail.

				In summary, the current policy is being unevenly enforced. Those that are complying with the requirement are reducing thermal bridging as intended, while those not complying with the requirement are not reducing thermal bridging.
				Resolution: Policy Record ID 00429 contains the most recent resolution of this issue. This resolution (ID 00188) is only being retained to maintain a complete Policy Record. In order to improve the frequency with which Item 4.4.5e reduces thermal bridging, EPA will remove the exemption from 24" on-center spacing and instead replace it with an alternate compliance path that requires at least R-20.0 wall insulation. That is to say, to meet the intent of Item 4.4.5e, partners in Climate Zones 5 - 8 may either use 24" on-center spacing *or* insulate the wall to ≥ R-20.0 or higher. Partners will no longer be exempted from the 24" on-center spacing requirement simply by providing a framing plan by the builder, architect, designer, or engineer. Partners that elect to use 24" on-center spacing to satisfy Item 4.4.5e will reduce thermal bridging by reducing the quantity of studs in the wall. Those who elect to use R-20.0 insulation will instead improve the overall wall assembly using advanced insulation materials (e.g., high-density fiberglass batts, blown-in fiberglass, dense-packed cellulose, foam). To account for these policy changes, Item 4.4.5e will be revised to read: "Minimum stud spacing of 16 in. o.c. for 2x4 framing in all Climate Zones and, in Climate Zones 5 through 8, 24 in. o.c. for 2x6 framing[21]" Footnote 21 will be revised to read: "In Climate Zones 5 - 8, a minimum stud spacing of 16 in. o.c. is permitted to be used with 2x6 framing if ≥ R-20.0 wall insulation is installed. Regardless, all vertical framing members shall either be on-center or have an alternative structural purpose (e.g., framing members at the edge of pre-fabricated panels) that is apparent to the Rater or documented in a framing plan that encompasses that member and is provided by the builder, architect, designer, or engineer. The Rater need not evaluate the structural necessity of the framing plan to qualify the home. However, all 2x6 framing with stud spacing of 16 in. o.c. in Climate Zones 5 - 8 shall have ≥ R-20.0 wall insulation installed regardless of any framing plan or alternative equivalent total UA calculation."
00211	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Change**	**Item 4.4.5e – Minimum stud spacing for advanced framing**
				Issue: Policy Record ID 00429 contains the most recent resolution of this issue. This issue (ID 00211) is only being retained to maintain a complete Policy Record. Item 4.4.5e requires 24" on-center stud spacing in Climate Zones 5 - 8 for partners using the advanced framing strategy to reduce thermal bridging in 2x6 wood frame walls. An exemption from the 24" on-center spacing requirement is provided in Footnote 21 if alternate spacing is serving a structural purpose and a framing plan is provided by the builder, architect, designer,

				or engineer. Per Footnote 21, the Rater need not evaluate the structural necessity of the details in the framing plan to qualify the home. ENERGY STAR partners have responded to these requirements and allowances in several ways: • Some partners have implemented this requirement and have produced efficient wall assemblies with reduced thermal bridging as was originally intended. • Some partners have circumvented this requirement using the exemption. Partners have suggested that the exemption has been used for a variety of reasons, ranging from the intended (e.g., for structural reasons) to the unintended (e.g., to avoid the cost of redesigning framing plans or due to perceived quality concerns about 24" on-center spacing). • Some partners have circumvented this requirement by using 2x4 studs, which results in the installation of less wall cavity insulation and more thermal bridging than originally intended. • Some partners have made plans to leave the program altogether to avoid this detail. In summary, the current policy is being unevenly enforced. Those that are complying with the requirement are reducing thermal bridging as intended, while those not complying with the requirement are not reducing thermal bridging.
				Resolution: Policy Record ID 00429 contains the most recent resolution of this issue. This issue (ID 00211) is only being retained to maintain a complete Policy Record. In order to improve the frequency with which Item 4.4.5e reduces thermal bridging, EPA will remove the exemption from 24" on-center spacing and instead replace it with an alternate compliance path that requires that the *wall cavity insulation* achieve at least R-20.0. Other assembly components such as drywall, exterior cladding, and insulated sheathing will not be permitted to be used to meet this alternate compliance path. Only the wall cavity insulation itself shall be considered. That is to say, to meet the intent of Item 4.4.5e, partners in Climate Zones 5 - 8 may either use 24" on-center spacing or insulate the wall cavity so as to achieve ≥ R-20.0. Partners will no longer be exempted from the 24" on-center spacing requirement simply by providing a framing plan by the builder, architect, designer, or engineer. Partners that elect to use 24" on-center spacing to satisfy Item 4.4.5e will reduce thermal bridging by reducing the quantity of studs in the wall. Those who elect to achieve ≥ R-20.0 wall cavity insulation will instead improve the overall wall assembly using advanced insulation materials (e.g., high-density fiberglass batts, blown-in fiberglass, dense-packed cellulose, foam). To account for these policy changes, Item 4.4.5e will be revised to read:

				"Minimum stud spacing of 16 in. o.c. for 2x4 framing in all Climate Zones and, in Climate Zones 5 through 8, 24 in. o.c. for 2x6 framing [21]" Footnote 21 will be revised to read: "In Climate Zones 5 - 8, a minimum stud spacing of 16 in. o.c. is permitted to be used with 2x6 framing if ≥ R-20.0 wall cavity insulation is achieved. Regardless, all vertical framing members shall either be on-center or have an alternative structural purpose (e.g., framing members at the edge of pre-fabricated panels) that is apparent to the Rater or documented in a framing plan that encompasses that member and is provided by the builder, architect, designer, or engineer. The Rater need not evaluate the structural necessity of the framing plan to qualify the home. However, all 2x6 framing with stud spacing of 16 in. o.c. in Climate Zones 5 - 8 shall have ≥ R-20.0 wall cavity insulation installed regardless of any framing plan or alternative equivalent total UA calculation."
00470	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Section 5 – Transition to Section 4 of the Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the Thermal Enclosure System Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: As part of an overall transition from the Thermal Enclosure System Rater Checklist to the Rater Design Review Checklist and Rater Field Checklist, Section 5 will be moved to Section 4 of the Rater Field Checklist. The overall intent of these new Items will not change significantly. However, the Section has been reformatted due to space considerations. In addition, a note will be added to the header of Section 4 in the Rater Field Checklist clarifying that all references to 'sealed' in this Section indicate the use of caulk, foam, or equivalent material, unless otherwise noted. Additionally, all references to 'caulk, foam, or equivalent material' in Section 4 of the Rater Field Checklist will be replaced with 'sealed'. Items 5.1.1 through 5.1.4 will be consolidated into a single new Item, Item 4.1, to encompass sealing requirements for most types of penetrations, as follows: "Ducts, flues, shafts, plumbing, piping, wiring, exhaust fans, & other penetrations to unconditioned space sealed, with blocking / flashing as needed" Items 5.1.5, 5.2.1, 5.2.2, 5.2.3, 5.2.4, 5.2.7, and 5.3.1 will be moved to Items 4.2, 4.3, 4.4, 4.5, 4.6, 4.8, and 4.9 on the Rater Field Checklist, respectively, with minor refinements. Items 5.3.2 and 5.3.3 will be merged into a single new Item, Item 4.10, on the Rater Field Checklist, as follows:

				"Attic access panels, drop-down stairs, & whole-house fans equipped with durable ≥ R-10 cover that is gasketed (i.e., not caulked). Fan covers either installed on house side or mechanically operated." Because Items 5.1.6, 5.2.5, and 5.2.6 are only applicable to a small percent of homes participating in the program, these Items and the associated Footnote, Footnote 23, will be removed to streamline the certification process for Raters.
00120	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Section 5 – Thickness requirements for foam used for air sealing**
				Issue: Partners have asked if foam used for air sealing any of the penetrations, cracks, and openings listed in Section 5 must meet the minimum thickness requirements established by Footnote 6 for open- and closed-cell foam to be used as air barriers.
				Resolution: Footnote 6 applies to Section 3, Fully-Aligned Air Barriers, not to Section 5, Air Sealing. Foam does not need to meet the minimum thickness requirements of Footnote 6 when used to seal Items in Section 5.
00212	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Section 5 – Use of adhesive-backed foam tape as an air sealing material**
				Issue: Partners have asked if adhesive-backed foam tapes may be used as air sealing materials to meet the air sealing requirement of Section 5.
				Resolution: Adhesive-backed foam tapes may be used as air sealing materials to meet the air sealing requirements of Section 5. Note that EPA recommends that partners follow manufacturer guidance in selecting and using air sealing products, particularly with respect to durably adhering to the substrate and maintaining an effective seal over time.
00317	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Section 5 – Use of drywall mud for air sealing not permitted**
				Issue: Partners have asked if the use of drywall mud is an acceptable material for air sealing the locations included in Section 5 (e.g., penetrations, cracks).
				Resolution: Drywall mud is not permitted to be used to meet Section 5 because it can become brittle and crack after drying, which prevents a durable air-tight seal.
00213	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 5.1 – Air sealing of seams between framing members not required**
				Issue: Partners have noted that it is common practice to seal the seams between adjacent wood framing members and have asked if this is required by Item 5.1.
				Resolution: The seams between adjacent wood framing members are not required to be sealed per Item 5.1. Only the locations listed in Item 5.1, which are commonly overlooked penetrations that can cause significant infiltration, are required to be sealed to earn the label. Note that EPA recommends, but does not require, that all other penetrations passing through the primary air barrier be sealed to create a complete thermal enclosure system.

00318	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 5.1.1 – Air sealing where ducts transition from conditioned to unconditioned space**
				Issue: Partners have asked whether the opening around a flex duct where it transitions from conditioned to unconditioned space is permitted to be sealed with blocking or flashing, or if hard ducts must be used at this transition.
				Resolution: The intent of Item 5.1.1 is, in part, to ensure that the opening around a duct is fully sealed where it transitions from conditioned to unconditioned space . Because flex duct is not a rigid material, it is very difficult to durably seal this opening between the duct and solid blocking or flashing that may surround it. Furthermore, even if the opening around a flex duct is sealed during initial installation, the long term durability of the air seal may be compromised due to the movement of the flex duct. For this reason, a flexible duct connector (i.e., a rigid coupling between two sections of flexible duct) must be used at transitions from conditioned to unconditioned space to help ensure a durable air seal and meet the intent of this Item.
00214	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 5.1.3 – Air sealing of electrical switch and receptacle box penetrations not required**
				Issue: Partners have asked whether switch and receptacle boxes installed in exterior walls are classified as electrical wiring and if they are required to be sealed to demonstrate compliance with Item 5.1.3.
				Resolution: Electrical switch and receptacle boxes are not considered to be electrical wiring and are therefore not required to be air sealed. Only the locations listed in Item 5.1, which are commonly overlooked penetrations that can cause significant infiltration, are required to be sealed to earn the label. Note that EPA recommends, but does not require, that all other penetrations passing through the primary air barrier, including electrical switch and receptacle boxes, be sealed to create a complete thermal enclosure system.
00472	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Item 5.2.1 – Applies to both sill plates and bottom plates**
				Issue: Partners have asked for clarification about whether Item 5.2.1 applies to both sill plates and bottom plates. While the term “sill plate” and “bottom plate” are often interchangeable, some partners believe that they represent separate and distinct elements of a home.
				Resolution: The intent of Item 5.2.1 is to seal both sill plates and bottom plates. While many partners have likely interpreted this intent correctly, this entry will serve to clarify the intent for partners who may have viewed “sill plate” and “bottom plate” as separate and distinct elements of a home.
00473	**07/01/2015**		**Clarification**	**Item 5.2.1 – Foam gaskets required beneath metal sill plates on concrete or masonry**

		Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)		**Issue:** Partners have asked for clarification about whether Item 5.2.1 applies to metal sill plates resting atop concrete or masonry and adjacent to conditioned space.
				Resolution: Due to imperfections in the surface of masonry and concrete, both wood and metal sill plates are unlikely to create a proper air seal without a foam gasket and supplemental air sealing (e.g., foam, caulk). Therefore, Item 5.2.1 does apply to metal sill plates, also called wall tracks, and a foam gasket plus supplemental sealing is required.
00040	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 5.2.1 – Foam gasket beneath sill plates on concrete or masonry**
				Issue: Partners have asked EPA to evaluate whether a sill sealer meets the intent of Item 5.2.1, which requires that sill plates adjacent to conditioned space be sealed to the foundation or sub-floor with caulk and that a gasket also be placed beneath the sill plate if it rests atop concrete or masonry. Separately, partners have also asked EPA for permission to use adhesive in place of a foam gasket to meet the intent of this item.
				Resolution: A sill sealer would meet the intent of using a foam gasket underneath sill plates resting atop concrete or masonry. Note that Item 5.2.1 also requires the sill plate to be sealed to the foundation or subfloor with caulk. Adhesive is a bonding agent and does not provide the same air sealing properties as a foam gasket. When adhesive dries, it is prone to cracking, which can lead to many small penetrations through which air can enter the home. For this reason, applying adhesive to seal a sill plate to the foundation or sub-floor does not meet the intent of Item 5.2.1.
00121	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 5.2.1 – Foam gaskets under sill plates atop non-solid foundations**
				Issue: Partners have asked if a foam gasket is required beneath sill plates adjacent to conditioned space if they rest on a foundation that is not solid (e.g. CMU foundation walls).
				Resolution: Item 5.2.1 requires a foam gasket beneath sill plates resting atop concrete or masonry (e.g., CMU walls) and adjacent to conditioned space: “All sill plates adjacent to conditioned space sealed to foundation or sub-floor with caulk. Foam gasket also placed beneath sill plate if resting atop concrete or masonry and adjacent to conditioned space.”
00122	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 5.2.1 – Foam gaskets and sill plate caulking**
				Issue: Partners have asked why sill plates adjacent to conditioned spaces must be sealed to the foundation or sub-floor with caulk AND a foam gasket must also be placed beneath them if they rest atop concrete or masonry.
				Resolution: A foam gasket and caulk sealing are required where sill plates rest atop concrete or masonry to provide adequate air sealing. Homes are particularly susceptible to poor air-sealing at the interface of two dissimilar materials such as these. This occurs because inconsistencies in the shape and texture of the materials often lead to substantial gaps through

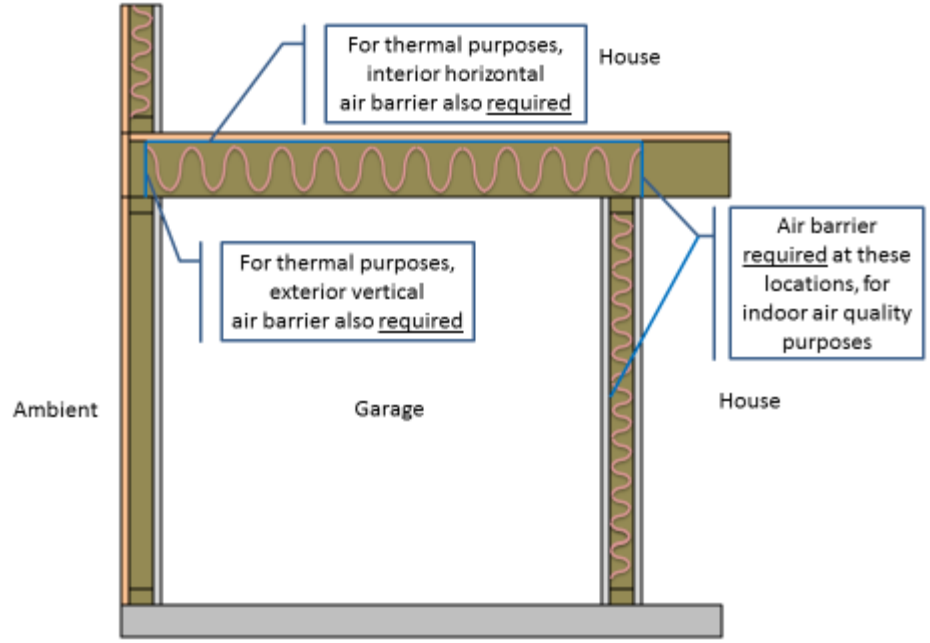
				which air can leak. Therefore, a foam gasket and caulk sealing are both required as a best practice to eliminate gaps and ensure a complete air seal.
00123	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 5.2.1 – Alternatives to foam gaskets**
				Issue: Partners have asked if caulk or construction adhesive may be applied to the bottom of the sill plate in place of a foam gasket to meet the intent of Item 5.2.1.
				Resolution: Neither adhesive nor caulk applied by themselves to the bottom of the sill plate provide the uniform and complete sealing provided by a gasket; they are not acceptable alternatives to a foam gasket and do not meet the intent of Item 5.2.1.
00124	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 5.2.1 – Alternatives to sill plate caulking**
				Issue: Partners have asked if foam sealants may be used in place of caulk to seal sill plates adjacent to conditioned spaces to the foundation or sub-floor per Item 5.2.1.
				Resolution: Foam sealant is permitted to be used in place of caulk to seal the sill plate to the foundation or sub-floor. Item 5.2.1 will be revised as follows: "All sill plates adjacent to conditioned space sealed to foundation or sub-floor with caulk, foam, or equivalent material." Note that when sealing the foundation to the sill plate, products should be selected in part based on the voids that they are intended to fill. Larger voids should be filled with expandable materials and smaller voids with more precise materials. Manufacturer instructions typically provide guidance on proper product selection and use.
00215	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Change**	**Item 5.2.1 – Sealing requirements for sill plates in homes with a stucco cladding system**
				Issue: Partners have asked if a home with a continuous stucco cladding system is required to comply with Item 5.2.1. Item 5.2.1 requires all sill plates adjacent to conditioned space to be sealed to the foundation or sub-floor with caulk, foam, or equivalent material. It also requires that a foam gasket be placed beneath the sill plate if it is resting atop concrete or masonry and adjacent to conditioned space. Partners have expressed the belief that there will be minimal benefits of complying with Item 5.2.1 in homes where a continuous stucco cladding system extends over the sill plate, thereby minimizing air leakage between the sill plate and the subfloor or foundation.
				Resolution: EPA agrees that homes where a continuous stucco cladding system extends over the sill plate will minimize air leakage between the sill plate and the subfloor or foundation. A new Footnote will be added to Item 5.2.1 as follows: "In Climate Zones 1 through 3, a continuous stucco cladding system adjacent to sill and bottom plates is permitted to be used in lieu of sealing plates to foundation or sub-floor with caulk, foam, or equivalent material."

				The wording in Footnote 23 will also be refined so that references to stucco cladding systems will use consistent terminology. This will not change the intent of the Footnote. The revised Footnote will read: "In Climate Zones 1 through 3, a continuous stucco cladding system sealed to windows and doors is permitted to be used in lieu of sealing rough openings with caulk or foam."
00319	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 5.2.1 – Sealing exemption for below-grade sill plates**
				Issue: Partners have asked if sill plates that are below-grade are required to be sealed to the foundation or sub-floor in order to demonstrate compliance with Item 5.2.1.
				Resolution: The potential for air leakage beneath below-grade sill plates is significantly reduced relative to above-grade sill plates. For this reason, sill plates that are below grade are not required to be sealed to the foundation or sub-floor with caulk, foam, or equivalent material. Furthermore, a foam gasket is not required to be placed beneath these below-grade sill plates. To clarify this intent, Item 5.2.1 will be revised as follows to exempt below-grade sill plates from these requirements: "All above-grade sill plates adjacent to conditioned space sealed to foundation or sub-floor with caulk, foam, or equivalent material. Foam gasket also placed beneath above-grade sill plate if resting atop concrete or masonry and adjacent to conditioned space"
00284	**12/31/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 5.2.1 - Sealing sill plates in existing structural masonry buildings**
				Issue: Partners certifying existing homes have asked if this Item is applicable to structural masonry and other monolithic wall assemblies.
				Resolution: EPA anticipates that for most homes with structural masonry walls, or other monolithic wall assemblies, that are undergoing a gut rehabilitation, the wall itself, the wall insulation, or additional sealing will create an air barrier on the exterior side of the sill plate. For sill plates on the interior side of a structural masonry wall that are integrated with the exterior air barrier, EPA recommends, but does not require, that these sill plates be air sealed. To reflect this intent, a Footnote will be added to this Item that reads: "Existing sill plates (e.g., in a home undergoing a gut rehabilitation) on the interior side of structural masonry or monolithic walls are exempt from this Item." Partners are encouraged to read Building America's "Measure Guideline: Internal Insulation of Masonry Walls" by J.F. Straube, K. Ueno, and C.J. Schumacher of Building Science Corporation for more information about the benefits of a continuous integrated thermal / air barrier.
00285	**12/31/2012**		**Change**	**Item 5.2.1 - Foam gasket beneath an existing sill plate**

		Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)		**Issue:** Partners certifying existing homes have expressed concern that it is not feasible to remove sill plates to place a gasket beneath, even for a gut rehabilitation.
				Resolution: Sill plates are a commonly overlooked place that is prone to infiltration due to uneven surfaces and adjacent dissimilar materials. A gasket combined with caulk is the preferred approach to minimizing leakage at this interface. To achieve the same intent in existing homes, partners are permitted to instead seal around all sill plates and bottom plates resting atop concrete or masonry and adjacent to conditioned space. This includes sealing the seam where the top exterior edge of the plate meets the sheathing and sealing the seam where the bottom interior edge of the plate meets the concrete or masonry. A Footnote will be added to this Item that reads: "In addition, other existing sill plates resting atop concrete or masonry and adjacent to conditioned space are permitted, in lieu of using a gasket, to be sealed with caulk, foam, or equivalent material at both the interior seam between the sill plate and the subfloor and the seam between the top of the sill plate and the sheathing."
00041	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 5.2.3 – Purpose and methods for sealing top plates**
				Issue: Partners have asked about the intent of Item 5.2.3, which requires "sheetrock sealed to top plate at all attic/wall interfaces using caulk, foam, or equivalent material". Partners have also asked about appropriate methods for meeting this requirement, including suggestions for gasketing materials that can be used between the top plate and drywall.
				Resolution: The interface between the drywall and the top plate is a common point of air leakage in the home's pressure boundary. Furthermore, extreme temperatures are often found in unconditioned attics, exacerbating the efficiency and comfort impacts for the home's occupants when leakage occurs. Per Item 5.2.3, there are two ways to seal drywall to top plates: "either apply the sealant directly between the sheetrock and top plate or to the seam between the two from the attic above." EPA is not permitted to endorse any specific products, but any caulk, foam, or equivalent material that can fully seal the top plate is an acceptable material. Note that construction adhesive is not permitted to be used.
00125	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 5.2.3 – Air sealing at conditioned attic / wall interfaces**
				Issue: Partners have asked if air sealing ceiling drywall to the top plate per Item 5.2.3 is still required when the thermal and pressure boundary of the home is located at the roof deck of the attic rather than at the attic / ceiling interface. Additionally, partners have requested that construction adhesive be permitted to be used to seal drywall to top plates at attic / wall interfaces. This adhesive is typically already stocked on

				construction sites when drywall is being installed, so meeting Item 5.2.3 through the use of adhesive is more achievable than through the use of caulk, foam, or gaskets.
				Resolution: The specific intent of Item 5.2.3 is explained in Policy Record Item 00041: "The interface between the drywall and the top plate is a common point of air leakage in the home's pressure boundary. Furthermore, extreme temperatures are often found in unconditioned attics, exacerbating the efficiency and comfort impacts for the home's occupants when leakage occurs." When the thermal and pressure boundary of the home are located at the roof deck of the attic, both of the concerns listed above are no longer applicable and Item 5.2.3 is not required. That is to say: • The pressure boundary of the home moves to the roof deck, so air leaking through the drywall / top plate interface is no longer passing through the home's pressure boundary. • Installing insulation at the roof deck brings the attic within the home's thermal boundary and therefore eliminates the extreme temperatures that can be found in unconditioned attics. Item 5.2.3 will be revised to not require sealing when the thermal and pressure boundary of the home is at the roof deck. Item 5.2.3 allows "caulk, foam, or equivalent material" to be used to seal drywall to the top plate. Construction adhesive was excluded because it is not primarily intended to serve as an air sealing material and because the term encompasses many kinds of adhesives with very different properties, some of which are not conducive to this application. Based on feedback from partners, along with further research and consultation with DOE's Building America Program, drywall adhesive will now be permitted to be used to meet Item 5.2.3. Drywall adhesive is designed specifically to maintain a bond with drywall and therefore is an equivalent material for Item 5.2.3. Note that this allowance applies to drywall adhesive, not to all construction adhesives. This item will be revised as follows: "Drywall sealed to top plate at all unconditioned attic / wall interfaces using caulk, foam, drywall adhesive (but not other construction adhesives), or equivalent material. Either apply sealant directly between drywall and top plate or to the seam between the two from the attic above."
00286	**12/31/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 5.2.7 - Sealing common walls in all multifamily buildings**
				Issue: Partners have asked if the common walls of multifamily dwelling units must be air sealed even when the common wall is not constructed of drywall. Currently, this Item only requires that the gap between the "drywall shaft wall (i.e. common wall) and the structural framing between units" be sealed at all exterior boundaries.

				Resolution: The intent of this Item is to seal the gap between the common wall and the structural framing between units at all exterior boundaries, regardless of whether the common wall is constructed of drywall. To clarify this original intent, Item 5.2.7 will be revised as follows: "In multifamily buildings, the gap between the common wall (e.g. the drywall shaft wall) and the structural framing between units fully sealed at all exterior boundaries."
00471	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 5.3 – Addition of Item to clarify air sealing intent for garages**
				Issue: Partners have asked whether the combination of an air barrier and air sealing is always required in floor cavities that are aligned with walls separating attached garages from occupiable space, or if an air barrier is only required when this location is insulated.
				Resolution: In addition to the thermal benefits that an air barrier and air sealing can provide in floor cavities that are aligned with walls separating attached garages from occupiable space, an air barrier at this location also improves the indoor air quality by reducing the potential for contaminants to migrate from the garage into the home. While Item 3.1.8 was always intended to convey this requirement, a new Item will be added to the Air Sealing section to further clarify that the combination of an air barrier and air sealing is always required in floor cavities that are aligned with walls separating attached garages from occupiable space. It will also be clarified that the requirement for air sealing applies to the garage wall itself. The new Item will read as follows: "Walls that separate attached garages from occupiable space sealed and, also, an air barrier installed and sealed at floor cavities aligned with these walls." Exhibit 1 illustrates this policy. In this configuration, a wall separates an attached garage from occupiable space, and a floor cavity is located above this wall. For indoor air quality purposes, an air barrier is required at the wall that separates the attached garage from occupiable space and, also, an air barrier must be installed and sealed at the floor cavity aligned with this wall. For thermal purposes, an air barrier is also required at the exterior vertical surface of the floor insulation and at the interior horizontal surface of the floor insulation.

				 Exhibit 1: Floor Cavity Adjacent to Outdoors & Over Garage
00320	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 5.3.1 – Gasketing versus air-sealing doors adjacent to unconditioned space**
				Issue: Partners have noted that using a gasket is the only obvious way to make a door that is adjacent to unconditioned or ambient space air-tight. Therefore, they have asked whether the use of a gasket is sufficient to meet the intent of Item 5.3.1 or if other air-sealing measures are required.
				Resolution: The intent of this Item is to use a gasket to substantially reduce air leakage around doors that separate conditioned space from unconditioned or ambient space. To reflect this clarification, Item 5.3.1 will be revised as follows: "Doors adjacent to unconditioned space (e.g., attics, garages, basements) or ambient conditions made substantially air-tight with weatherstripping or equivalent gasket."
00096	**10/31/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 5.3.1 and 5.3.2 – Attic access insulation**
				Issue: Partners have asked several questions about insulating and air sealing attic accesses, including which surfaces must be insulated for various types of access on ceilings and walls, whether non-uniform insulation levels can be used to meet the intent of the checklist items, and

				whether insulation may be attached to access panels or if only prefabricated covers are acceptable.
				Response: Attic access panels on vertical surfaces (i.e., walls) are required to meet the requirements for doors contained in Item 5.3.1. In contrast, Item 5.3.2 applies to attic access panels and drop-down stairs located in ceilings, where ceilings are defined as all non-vertical surfaces, regardless of slope (e.g., cathedral ceilings, tray ceilings, conditioned attic roof decks, flat ceilings, sloped ceilings). Item 5.3.2 requires that accesses be insulated to at least R-10, while attic accesses on vertical surfaces are not required to be insulated to any particular level by Item 5.3.1. Footnote 24 recognizes several examples of acceptable insulation approaches that meet the intent of Item 5.3.2, including adhering insulation to an access panel: "Examples of durable covers include, but are not limited to, pre-fabricated covers with integral insulation, rigid foam adhered to cover with adhesive, or batt insulation mechanically fastened to the cover (e.g., using bolts, metal wire, or metal strapping)." The insulation requirement in Item 5.3.2 applies to the surface area bounded by the gasketing material. Examples of surfaces required to be insulated for different kinds of attic accesses are available at http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_v2_v3_training_resources. Partners can meet the requirement in Item 5.3.2 for a cover insulated to at least R-10 in one of two ways. Compliance Option 1: Continuous ≥ R-10 Insulation One option to demonstrate compliance is to insulate 100% of the applicable surface area with ≥ R-10 insulation. Compliance Option 2: Alternative Equivalent U-Factor A second option to demonstrate compliance is to achieve an alternative equivalent U-factor that is less than or equal to 0.10, which shall be calculated using the following parameters: 1. The parallel path methodology outlined in Chapter 25 - *Heat, Air, and Moisture Control in Building Assemblies -Fundamentals* 2009 ASHRAE Handbook of Fundamentals shall be used; 2. Material U-factors shall be taken from Chapter 26 - *Heat, Air, and Moisture Control in Building Assemblies -Material Properties* of the 2009 ASHRAE Handbook of Fundamentals; 3. The calculation shall be performed moving from the interior surface to the exterior surface (heat transfer under winter conditions) to ensure consistent results; 4. A minimum of 75% of the applicable surface area shall be insulated to at least R-10.

				Footnote 24 will be revised as follows: "Examples of durable covers include, but are not limited to, pre-fabricated covers with integral insulation, rigid foam adhered to cover with adhesive, or batt insulation mechanically fastened to the cover (e.g., using bolts, metal wire, or metal strapping). In all cases, the surface area bounded by the gasketing material shall either be insulated to ≥R-10 or achieve an alternative equivalent U-factor ≤ 0.10 using the methodology defined in EPA's guidance on attic entrances available at http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_v2_v3_training_resources."
00042	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 5.3.2 – Use of weather stripping to seal attic access panels**
				Issue: Partners have asked whether weather stripping is sufficiently durable to be used as a gasketing material around attic access panels.
				Resolution: Weather stripping may be used as a gasketing material to meet the intent of Item 5.3.2.
00043	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 5.3.2 – Attic access panel insulation levels**
				Issue: Partners have asked why there is a discrepancy between the 2009 IECC's required insulation levels for attic hatches and the requirements in Item 5.3.2. The partner noted that the 2009 IECC requires that attic hatches be insulated to the same levels as the surrounding area whereas the Thermal Enclosure System Rater Checklist requires a minimum of R-10.
				Resolution: The intent of Item 2.1 is to ensure that the overall thermal envelope of the home meets or exceeds the insulation level requirements of the 2009 IECC, as demonstrated by using the prescriptive R-values, an alternative equivalent U-factor calculation, or an alternative equivalent total UA calculation. However, Item 5.3.2 of the checklist imposes a minimum insulation level of R-10 for attic access panels, which must always be met, even when using the equivalent U-factor or total UA options. That is to say, the IECC allows builders to go down to R-0 (i.e., no insulation) in all locations as long as the builder compensates elsewhere with higher levels of insulation and achieves an equivalent U-factor or total UA value. EPA has learned, however, that there are several common locations with a high potential for significant thermal bypasses. Therefore, EPA is imposing more stringent requirements than code by never allowing the insulation level to drop below the level specified in Item 5.3.2, regardless of the tradeoffs used.
00321	**06/01/2013**	**Thermal Enclosure System Rater**	**Comment**	**Item 5.3.2 – Use of batt insulation for insulation attic access panels**
				Issue: Partners have asked if batt insulation may be glued to the attic access panel to meet the intent of Item 5.3.2.

		Checklist (Version 3, Rev. 06)		**Resolution:** Footnote 25 states that batt insulation must be mechanically fastened to the cover (e.g., using bolts, metal wire, or metal strapping). The use of glue is not an example of mechanical fastening and is not permitted to be used to meet the intent of this Item.
00322	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Item 5.3.2 – Access panels & stairs that don't separate conditioned from uncond. space**
				Issue: Partners have asked whether attic access panels and drop-down stairs that don't separate conditioned from unconditioned space must meet the requirements of Item 5.3.2. This may occur, for example, if the attic is unvented and conditioned.
				Resolution: Item 5.3.2 is only applicable to attic access panels and drop-down stairs that separate conditioned from unconditioned space.
00323	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Footnote 7 - Grade I insulation installation at rim / band joists**
				Issue: Partners have expressed concern that if an interior air barrier is not included at band joists, RESNET-defined Grade 1 insulation installation cannot be achieved.
				Resolution: For rim / band joists, RESNET states that the inclusion of interior sheathing or enclosure material is optional when evaluating the insulation installation grade. The "Walls" Section of Appendix A, located on page A-11 of RESNET's *2006 Mortgage Industry National Home Energy Rating System Standards* clarifies that "For rim or band joist insulation, use the inspection guidelines under "Walls—Insulation value" to assess "Grade I", "Grade II", or "Grade III" installation. Exception: the interior sheathing/enclosure material is optional in all climate zones, provided insulation is adequately supported and meets all other requirements."
00324	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Footnote 7 – Air barrier exemptions for rim and band joists**
				Issue: Partners have asked if the exemption in Footnote 7, which exempts band joists in Climate Zones 4 through 8 from having an interior air barrier, is intended to only apply to band joists or if it also applies to rim joists.
				Resolution: The exemption in Footnote 7 was not intended to make a distinction between a rim joist and a band joist. Both rim and band joists are exempted from the requirement for an interior vertical air barrier in Climate Zones 4-8. To clarify this intent, Footnote 7 will be revised to read: "EPA highly recommends, but does not require, inclusion of an interior air barrier at rim / band joists in Climate Zones 4 through 8"
00216	**09/10/2012**	**Thermal Enclosure System Rater**	**Clarification**	**Footnote 12 – Reduced thermal bridging requirements apply to each multifamily unit**
				Issue: Partners have asked if the exemption in Footnote 12, which allows up to 10% of the total exterior wall surface to be exempt from the reduced thermal bridging requirements to

		Checklist (Version 3, Rev. 05)		accommodate intentional designed details, may be applied to an entire multifamily building or if the exemption may only be applied to each individual multifamily unit.
				Resolution: Because only individual units within multifamily buildings are eligible to earn the ENERGY STAR, the exemption provided by Footnote 12 of this Checklist shall only be applied to individual units. Allowing this exemption to be applied to an entire multifamily building could produce a situation where more than 10% of one individual unit's exterior walls are not meeting the intent of the reduced thermal bridging requirements. This could compromise the efficiency of the thermal envelope and be detrimental to homeowner comfort.
00651	**02/07/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Item 6.2 – Other strategies for meeting pressure limit**
				Issue: Partners have asked whether other strategies, not listed in Item 6.2, may be used to meet the intent of this Item.
				Resolution: The strategies listed in Item 6.2 were intended as examples that are commonly used, and were not intended to prohibit the use of other strategies. Any strategy or combination of strategies may be used to meet the Rater-measured pressure limit. This includes strategies not listed in Item 6.2, such as ventilating or louvered doors. To reflect this clarification, Item 6.2 will be revised to read: "Bedrooms pressure-balanced (e.g., using transfer grills, jump ducts, dedicated return ducts, undercut doors) to achieve a Rater-measured pressure differential ≤ 3 Pa with respect to the main body of the house when all bedroom doors are closed and all air handlers are operating. See Footnote 34 for alternative."
00627	**09/01/2017**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Item 6.2 – Carpet Recommended to be Installed Prior to Bedroom Pressure Test**
				Issue: Raters have asked whether the bedroom pressure-balancing test must be conducted only after any carpeting has been installed.
				Resolution: Testing prior to the installation of carpet may allow additional air to flow beneath the door, resulting in a lower pressure differential (i.e., better result) than after the carpet is installed. However, requiring this test to be completed after the carpet is installed may increase the stringency of the program for some partners, as well as create a logistical challenge in some homes (e.g., where the carpet is installed immediately prior to closing). Therefore, EPA recommends, but does not require, that the bedroom pressure-balancing test be conducted after any carpeting has been installed.
00665	**06/29/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Item 6.2 – Low-end limit for bedroom pressure differential, and test configuration**
				Issue: Partners have asked whether the bedroom pressure-balancing limit of 3 Pa (or 5 Pa for bedrooms with a design airflow ≥ 150 CFM) signifies that any value below +3 Pa (or +5 Pa) is

				allowed or if it signifies that the pressure must fall between -3 Pa and +3 Pa (or -5 Pa and +5 Pa). Additionally, partners have asked whether doors to rooms that can only be entered from the bedroom (e.g., a closet, a bathroom) should be open or closed when verifying this requirement.
				Resolution: To clarify the intent and ensure more consistent enforcement of this Item, EPA will specify that there is a low-end bedroom pressure-balancing limit of -3 Pa (or -5 Pa for bedrooms with a design airflow ≥ 150 CFM), and a high-end limit of +3 Pa (or +5 Pa for bedrooms with a design airflow ≥ 150 CFM). Any measured value between these limits will meet this requirement. While the primary intent of this Item is to ensure an adequate return-air pathway, a secondary intent is to ensure that the return-air pathway is not so large that it significantly depressurizes the bedroom, potentially increasing infiltration. Additionally, EPA will clarify that when verifying this requirement doors separating bedrooms from the main body of the house (e.g., a door between a bedroom and a hallway) shall be closed and doors to rooms that can only be entered from the bedroom (e.g., a closet, a bathroom) shall be open. Specifying this door configuration will prevent airflow from being restricted within this space, while ensuring more consistent results. To clarify this intent, Item 6.2 will be revised as follows: “Bedrooms pressure-balanced (e.g., using transfer grilles, jump ducts, dedicated return ducts, undercut doors) to achieve a Rater-measured pressure differential ≥ -3 Pa and ≤ +3 Pa with respect to the main body of the house when all air handlers are operating. See Footnote 34 for test configuration and an alternative compliance option.” And Footnote 34 will be revised as follows: “Item 6.2 does not apply to ventilation or exhaust ducts. For an HVAC system with a multi-speed fan, the highest design fan speed shall be used when verifying this requirement. When verifying this requirement, doors separating bedrooms from the main body of the house (e.g., a door between a bedroom and a hallway) shall be closed and doors to rooms that can only be entered from the bedroom (e.g., a closet, a bathroom) shall be open. As an alternative to the ± 3 Pa limit, a Rater-measured pressure differential ≥ -5 Pa and ≤ +5 Pa is permitted to be used for bedrooms with a design airflow ≥ 150 CFM. The Rater-measured pressure shall be rounded to the nearest whole number to assess compliance.”
00628	**09/01/2017**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Item 6.4 and Footnote 41 - Clarification of Units for Duct Leakage Tolerances**
				Issue: Item 6.4 and Footnote 41 refer both to “CFM” and to “CFM25” when defining duct leakage tolerances. The term “CFM25” is intended to represent airflow measured in cubic feet per minute at a pressure of 25 Pa and is, therefore, applicable to all tolerances. The current use of the term “CFM” in some instances may cause confusion.

				Resolution: All instances of the term "CFM" in Item 6.4 and Footnote 41 will be replaced with "CFM25".
00629	**09/01/2017**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Change**	**Item 7.2 – In multifamily, override control not required to be readily-accessible**
				Issue: Partners have asked whether, in multi-family dwelling units, the override control required by Item 7.2 must be readily accessible.
				Resolution: The latest edition of the standard that underpins this requirement, ASHRAE 62.2-2016, provides a new exception related to this issue. Section 4.4 of the standard states the following: "A readily accessible manual ON-OFF control, including but not limited to a fan switch or a dedicated branch-circuit overcurrent device, shall be provided. Controls shall include text or an icon indicating the system's function. Exception: For multifamily dwelling units, the manual ON-OFF control shall not be required to be readily accessible." Therefore, in multi-family dwelling units, the override control is not required to be readily accessible to the occupant. However, EPA recommends but does not require that the control be readily accessible to others (e.g., building maintenance staff) in lieu of the occupant. This exception is permitted to be used regardless of whether the partner's intent is to comply with the remainder of the 2010 or 2013 version of the standard. To reflect this change, a new Footnote will be added to Item 7.2, as follows: "In a multi-family dwelling unit, the override control is not required to be readily accessible to the occupant. However, in such cases, EPA recommends but does not require that the control be readily accessible to others (e.g., building maintenance staff) in lieu of the occupant."
00584	**06/03/2016**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Item 7.7.2 – Air inlet distance from dryer exhaust**
				Issue: The distance that air inlets must be from dryer exhausts was inadvertently left out of Item 7.7.2 during the transition to Revision 08.
				Resolution: To clarify that air inlets must be ≥ 3 ft. from dryer exhausts, Item 7.7.2 will be revised as follows: "Inlet is ≥ 2 ft. above grade or roof deck; ≥ 10 ft. of stretched-string distance from known contamination sources (e.g., stack, vent, exhaust, vehicles) not exiting the roof, and ≥ 3 ft. distance from dryer exhausts and sources exiting the roof."
00423	**10/09/2015**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Change**	**Item 8.1 Alternative kitchen exhaust rate for Passive House (PHI)**
				Issue: Several partners have requested that the alternative kitchen exhaust flow rate provided in Footnote 50 of Item 8.1 for homes certified by the Passive House Institute US (PHIUS+) be extended to homes certified by the Passive House Institute (PHI). Because homes certified

				under both organizations have mandatory infiltration limits that are extremely low, builders of these homes often use a continuously running balanced ventilation system to meet local mechanical exhaust requirements for kitchens. In such homes, partners have expressed difficulty complying with the ENERGY STAR program's requirements to meet the ASHRAE 62.2 local mechanical exhaust flow rate of 5 kitchen air changes per hour for continuously running fans.
				Resolution: To avoid discouraging participation in the ENERGY STAR certified homes program of these highly efficient homes, the alternative will be extended to Passive House Institute (PHI) homes. This alternative will remain in effect while DOE works to develop an ASRHAE 62.2-complaint solution optimized for very low-load homes. Footnote 50 will be modified to reference PHI certified homes in addition to PHIUS+ homes as follows: "As an alternative to Item 8.1, homes that are PHIUS+ or PHI certified are permitted to use a continuous kitchen exhaust rate of 25 CFM per 2009 IRC Table M1507.3."
00649	**12/13/2017**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Change**	**Item 8.1 and Footnote 50 – Alternative kitchen exhaust rate for select homes**
				Issue: Partners developing homes with extremely tight enclosures and balanced whole-house ventilation and local mechanical exhaust systems have expressed difficultly meeting the requirements of ASHRAE 62.2-2013 for local mechanical kitchen exhaust. The extremely tight enclosure, as tight as a PHIUS+ home, makes it difficult to use an exhaust-only system without pressure relief. Furthermore, balanced ventilation systems often don't have the ability to boost the local exhaust rate to the levels required by ASHRAE 62.2-2013. These constraints are analogous to those of a PHIUS+ or PHI certified home, for which an allowance is already provided to use a continuous kitchen exhaust rate of 25 CFM per 2009 IRC Table M1507.3.
				Resolution: The current allowance to use a continuous kitchen exhaust rate of 25 CFM for PHIUS+ or PHI certified homes will be extended to homes that meet an equivalent infiltration limit and provide both whole-house ventilation and local mechanical kitchen exhaust using a balanced system. To reflect this change, the last sentence of Footnote 50 of the Rater Field Checklist will be revised as follows: "As an alternative to Item 8.1, homes are permitted to use a continuous kitchen exhaust rate of 25 CFM per 2009 IRC Table M1507.3, if they are either a) PHIUS+ or PHI certified, or b) provide both whole-house ventilation and local mechanical kitchen exhaust using a balanced system, and have a Rater-verified whole-building infiltration rate ≤ 0.05 CFM50 per sq. ft. of Enclosure Area, and a Rater-verified dwelling unit compartmentalization rate ≤ 0.30 CFM50 per sq. ft. of Enclosure Area if multiple dwelling units are present in the building. 'Enclosure Area' is defined as the area of the surfaces that bound the volume being pressurized/depressurized during the test."

00588	**08/08/2016**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Item 9.1 – MERV 6 filters not mandatory for ERV / HRV systems**
				Issue: Partners have asked whether the requirements for a MERV 6 filter apply to ERV and HRV systems that have 10 ft. or more of ductwork. While these systems typically include a filter, they're often not MERV-rated and MERV-rated filters for these systems are not readily available.
				Resolution: Because it is difficult to obtain MERV-rated filters for ERV's and HRV's, and because both ASHRAE Standard 62.2-2010 and its user guide lack any definitive guidance regarding ERV's and HRV's, Footnote 52 will be modified to clarify that such systems are exempted from Item 9.1. To reflect this clarification, Footnote 52 of Rater-F will be revised to state: "Per ASHRAE 62.2-2010, ducted mechanical systems are those that supply air to an occupiable space through ductwork exceeding 10 ft. in length and through a thermal conditioning component, except for evaporative coolers. Systems that do not meet this definition are exempt from this requirement. While filters are recommended for mini-split systems, HRV's, and ERV's, these systems typically do not have MERV-rated filters available for use and are, therefore, also exempted under this version of the requirements. HVAC filters located in the attic shall be considered accessible to the owner if drop-down stairs provide access to attic and a permanently installed walkway has been provided between the attic access location and the filter."
00697	**09/01/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Item 10.3 and Footnote 56 - Updating Combustion Safety Testing RESNET Reference**
				Issue: Item 10.3 and Footnote 56 reference 'Section 805' of RESNET's Standards for testing of unvented combustion appliances. RESNET has updated the section number for these tests to '802'.
				Resolution: To correctly refer to the new section number, Item 10.3 will be revised as follows: "If unvented combustion appliances other than cooking ranges or ovens are located inside the home's pressure boundary, the Rater has followed Section 802 of RESNET's Standards, encompassing ANSI/ACCA 12 QH-2014, Appendix A, Section A3 (Carbon Monoxide Test), and verified the equipment meets the limits defined within." Similarly, Footnote 56 will be revised as follows: "Naturally drafted equipment is allowed within the home's pressure boundary in Climate Zones 1-3 if the Rater has followed Section 802 of RESNET's Standards, encompassing ANSI/ACCA 12 QH-2014, Appendix A, Sections A3 (Carbon Monoxide Test) and A4 (Depressurization Test for the Combustion Appliance Zone), and verified that the equipment meets the limits defined within."
00766	**09/01/2018**		**Refinement**	**Footnote 9 - References updated to latest RESNET standard**

		Rater Design Review Checklist (Version 3 / 3.1, Rev. 08)		**Issue:** This document contains a reference to the "RESNET Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Therefore, the current reference is outdated.
				Resolution: The reference to the "RESNET Standard" will be updated to the ANSI-standard version. To reflect this change, the following edit will be made: Footnote 9: "…A bedroom is defined by ANSI / RESNET / ICC Standard 301-2014 as…"
00698	**09/01/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Change**	**Reference added to 2016 version of ASHRAE 62.2 alongside 2010 and 2013 versions**
				Issue: Partners have asked if they are permitted to use the 2016 version of ASHRAE 62.2, in addition to the 2010 and 2013 versions, and published addenda.
				Resolution: Because of the significant differences to the ASHRAE 62.2 standard that can occur due to the release of new addenda and new versions, it will be clarified that partners are permitted to, but are not required to, use the latest version (i.e., ASHRAE 62.2-2016) of the standard. To reflect this change, the document will be updated as follows: • Footnote 30 will be revised to say that the Checklist is "...designed to meet the requirements of ASHRAE 62.2-2010 / 2013 / 2016...". • Footnote 50 will be revised to say that "...the prescriptive duct sizing requirements in Table 5.3 of ASHRAE 62.2-2010 / 2013 / 2016 are permitted to be used...". All remaining references to "ASHRAE 62.2-2010" are simply definitions and will remain unchanged.
00699	**09/01/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Change**	**Footnotes 36 and 42 - Updated references to Standard 380**
				Issue: Footnotes 36 and 42 refer to generic RESNET-approved test protocols and to test instruments to be used for duct leakage testing and ventilation airflow testing until the publication of ANSI / RESNET / ICC Standard 380. Now that the standard has been published, updating the Footnotes with a reference to Standard 380 will direct Raters to the appropriate test protocols, reduce potential confusion, and ensure that tests are being done consistent with the industry standard.
				Resolution: To direct Raters to the appropriate test protocols, reduce potential confusion, and ensure that tests are being done consistent with the industry standard, Footnotes 36 and 42 will be updated to refer to ANSI / RESNET / ICC Standard 380. To reflect this change, Footnote 36 will be revised as follows: "Items 6.4 and 6.5 only apply to heating, cooling, and balanced ventilation ducts. Duct leakage shall be determined and documented by a Rater using the same version of ANSI / RESNET / ICC Std. 380 that is utilized by RESNET for HERS ratings. Leakage limits shall be assessed on

				a per-system, rather than per-home, basis. For balanced ventilation ducts that are not connected to space heating or cooling systems, a Rater is permitted to visually verify, in lieu of duct leakage testing, that all seams and connections are sealed with mastic or metal tape and all duct boots are sealed to floor, wall, or ceiling using caulk, foam, or mastic tape." Footnote 42 will be revised as follows: "The whole-house ventilation air flow and local exhaust air flows shall be determined and documented by a Rater using the same version of ANSI / RESNET / ICC Std. 380 that is utilized by RESNET for HERS ratings."
00700	**09/01/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Footnote 49 - Updated kitchen volume definition and minimum kitchen exhaust rate**
				Issue: The definition of "kitchen volume" in Footnote 49 implies, but does not explicitly state, that it must encompass the kitchen exhaust fan and range / oven. On rare occasions, this could result in situations where these components are outside the kitchen volume, reducing the effectiveness of the local mechanical exhaust system. Additionally, when using kitchen volume to determine the required exhaust rate, there is currently no minimum absolute exhaust rate specified. As a result, for very small kitchen volumes (i.e., < 300 cu. ft.), the resulting minimum exhaust rate falls below 25 CFM, the minimum rate specified in Table M1507.3 of the 2009 IRC.
				Resolution: To ensure that kitchen local mechanical exhaust meets the program's intent, and to ensure that it does not drop below the requirements of the 2009 IRC, Footnote 49 will be revised to require inclusion of the kitchen exhaust fan and range / oven within the definition of "kitchen volume" and a minimum absolute kitchen exhaust rate will be added. Footnote 49 will be revised as follows: "Kitchen volume shall be determined by drawing the smallest possible rectangle on the floor plan that encompasses all cabinets, pantries, islands, peninsulas, ranges / ovens, and the kitchen exhaust fan, and multiplying by the average ceiling height for this area. In addition, the continuous kitchen exhaust rate shall be ≥ 25 CFM, per 2009 IRC Table M1507.3, regardless of the rate calculated using the kitchen volume. Cabinet volume shall be included in the kitchen volume."
00630	**09/01/2017**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Change**	**Footnote 52 – Alternative compliance option for filter access in attics**
				Issue: Partners have expressed difficulty meeting the filter access requirement in certain homes where the HVAC equipment is located in the attic, such as when space constraints preclude the use of drop-down stairs and the filter cannot be located at the return grille (e.g., due to linear returns or the use of high-MERV filters).
				Resolution: To address this challenge, an alternative compliance option will be added that permits the filter to be located such that it 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. This option will be added to Footnote 52 as follows: "…HVAC filters located in the attic shall be considered accessible to the owner if either: 1) drop-down stairs provide access to attic and a permanently installed walkway has been provided between the attic access location and the filter or 2) 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."
00701	**09/01/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Footnote 52 – Filters recommended, not required, for ducted *and* ductless mini-splits**
				Issue: Partners have asked if both ducted and ductless mini-splits are exempt from the filter requirements of Item 9.1 per Footnote 52.
				Resolution: Consistent with Policy Record Entry 00652, which clarifies that the program's definition of mini-split / multi-split air conditioners and heat pumps is not dependent on duct length, both ducted and ductless systems are recommended but not required to meet the filter requirements of Item 9.1. Footnote 52 will be modified as follows: "Based upon ASHRAE 62.2-2010, ducted mechanical systems are those that supply air to an occupiable space with a total amount of supply ductwork exceeding 10 ft. in length and through a thermal conditioning component, except for evaporative coolers. Systems that do not meet this definition are exempt from this requirement. While filters are recommended for mini-split systems, HRV's and ERV's, these systems, ducted or not, typically do not have MERV-rated filters available for use and are, therefore, also exempted under this version of the requirements. HVAC filters located in the attic shall be considered accessible to the owner if either 1) drop-down stairs provide access to attic and a permanently installed walkway has been provided between the attic access location and the filter or 2) 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."
00702	**09/01/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Footnote 52 – Definition of ducted mechanical system dependent on <u>total</u> supply duct length**
				Issue: Partners have asked for clarification of the ductwork length in the program's definition of a ducted mechanical system, which is based on ASHRAE 62.2-2010. Specifically, they have asked if the criteria for "ductwork exceeding 10 ft. in length" refers to the longest single supply duct run of the system or the total length of all supply ductwork in the system.
				Resolution: To clarify that the program's definition of a ducted mechanical system is dependent on whether the <u>total</u> length of all supply ductwork exceeds 10 ft., Footnote 52 will be modified as follows: "Based upon ASHRAE 62.2-2010, ducted mechanical systems are those that supply air to an occupiable space with a total amount of supply ductwork exceeding 10 ft. in length and through

				a thermal conditioning component, except for evaporative coolers. Systems that do not meet this definition are exempt from this requirement. While filters are recommended for mini-split systems, HRV's and ERV's, these systems, ducted or not, typically do not have MERV-rated filters available for use and are, therefore, also exempted under this version of the requirements. HVAC filters located in the attic shall be considered accessible to the owner if either 1) drop-down stairs provide access to attic and a permanently installed walkway has been provided between the attic access location and the filter or 2) 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."
00126	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Rater Pre-Drywall Inspection Date field and Rater Final Inspection Date field**
				Issue: Partners have asked if the Rater Pre-Drywall Inspection Date and Rater Final Inspection Date fields are required to be completed for every home.
				Resolution: The Rater Pre-Drywall Inspection Date and Final Inspection Date must be provided for all homes to document who completed the Checklist and when they completed it. If the builder verifies any items on the Checklist, then the Builder Inspection Date and Builder Employee fields also must be provided.
00662	**06/29/2018**	**Rater Design Review Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to "National Rater Design Review Checklist (Version 3 / 3.1, Rev. 08)". Additionally, any references to this document in other program documents will be updated to use the updated title.
00695	**09/01/2018**	**Rater Design Review Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Checklist separated into standalone document**
				Issue: Partners have requested that this Checklist be separated from the Rater Field Checklist into its own document to better align with the typical certification workflow and because of the potential confusion that results when the two Checklists are within the same document.
				Resolution: To avoid any confusion between this checklist and the Rater Field Checklist, the Checklists will be separated into their own individual documents. Note this will not change the content of the documents, but may result in minor formatting changes.
00664	**06/29/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.

				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to “National Rater Field Checklist (Version 3 / 3.1, Rev. 08)”. Additionally, any references to this document in other program documents will be updated to use the updated title.
00696	**09/01/2018**	**Rater Field Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Checklist separated into standalone document**
				Issue: Partners have requested that this Checklist be separated from the Rater Design Review Checklist into its own document to better align with the typical certification workflow and because of the potential confusion that results when the two Checklists are within the same document.
				Resolution: To avoid any confusion between this checklist and the Rater Design Review Checklist, the Checklists will be separated into their own individual documents. Note this will not change the content of the documents, but may result in minor formatting changes.
00666	**06/29/2018**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to “National HVAC Design Report (Version 3 / 3.1, Rev. 08)”. Additionally, any references to this document in other program documents will be updated to use the updated title.
00656	**04/11/2018**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Clarification**	**HVAC system with redundant sets of heating / cooling equipment is allowed**
				Issue: A partner has asked whether a home with an HVAC system comprised of multiple, redundant, sets of heating and cooling equipment serving a single zone is eligible to be certified. Such a system, which is very uncommon in the residential sector, would allow the first set of equipment to operate until failure and then allow the second set to operate. Currently, the program requirements do not address such an HVAC system. Furthermore, the HVAC Design Report does not have space for documenting multiple, redundant, sets of heating and/or cooling equipment.
				Resolution: A home with an HVAC system comprised of multiple, redundant, sets of heating and/or cooling equipment is eligible for certification, so long as all applicable requirements are met. When the HVAC system is designed to have redundant heating and/or cooling equipment (i.e., the multiple sets of heating and/or cooling equipment would not run at the same time), the HVAC system designer shall complete separate HVAC Design Reports, with each document associated with one set of heating and/or cooling equipment.
00652	**02/07/2018**		**Clarification**	**Exemption of ducted mini-split / multi-split air conditioners and heat pumps**

		HVAC Design Report (Version 3 / 3.1, Rev. 08)		**Issue:** Partners have noted that the current definition of mini-split / multi-split air conditioners and heat pumps provided in Policy Record entry #00330 includes an illustrative example of common duct length (e.g., 10 ft.). They have asked whether the length of the duct system is a determinant for meeting the definition of a mini-split / multi-split system. When the definition for this system type was created, most if not all mini-split and multi-split systems were constrained to limited duct runs because of the low static pressure limit of the fan. For most systems today, that is still the case. However, a new system type has emerged. While these systems maintain the variable refrigerant flow and distributed refrigerant technology with the capability of serving multiple indoor sections with a single outdoor section, the indoor sections are equipped with more powerful fans that can serve extended duct runs. It is for this emerging system type that the current policy is unclear.
				Resolution: Whether the length of the duct system is short or long on a mini-split / multi-split HVAC system, it does not change the overall rationale for exempting them. Furthermore, the 10 ft. limit was intentionally written as an example, using, “e.g.”, as opposed to an explicit limit. Therefore, while such systems typically have limited duct runs, the length of the duct system was not intended to be a determinant for meeting this definition. To convey this intent, the definition of a mini-split / multi-split system will be revised, as follows. With regards to mini-split / multi-split air conditioners and heat pumps, for the purposes of the ENERGY STAR Certified Homes program, the following definition will be assumed for this system type: “Mini-split / multi-split air conditioners and heat pumps have variable refrigerant flow and distributed refrigerant technology with the capability of serving multiple indoor sections with a single outdoor section. The indoor sections are typically, but not exclusively, mounted on room walls and/or ceilings and designed to heat or cool air within the conditioned space either directly or through limited duct runs. While duct runs are often limited to ≤ 10 ft., the length of the duct system is not a determinant for meeting this definition.”
00555	**04/01/2016**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Clarification**	**How to complete report for exempted system types**
				Issue: Partners have noted that there is some ambiguity about whether certain system types are exempted from completing portions of the HVAC Design Report, as they were under Rev. 07. With the release of Rev. 08, the design Sections were relocated to the HVAC Design Report while the commissioning Sections were relocated to the HVAC Commissioning Checklist. While the language in Footnote 1 of Rev. 07 was also relocated to the HVAC Commissioning Checklist, no such language was included in the HVAC Design Report. As a result, it’s unclear

				whether the Rev. 07 policy, which exempted certain equipment types from having to complete certain design Sections, has changed in Rev. 08.
				Resolution: So as not to increase the stringency of Rev. 08 relative to Rev. 07, only Sections 1 and 2 will be required to be completed for exempted system types. This will be consistent with Rev. 07 in that only project-related information and whole-house mechanical ventilation system design will be required to be documented. In addition, EPA will recommend, but not require, that the remaining design Sections be completed for exempted system types in Rev. 08. In this way, EPA will not change the stringency of the program with the latest Revision. To reflect this clarification, a second paragraph will be added to Footnote 1 as follows: "This report applies to split air conditioners, unitary air conditioners, air-source heat pumps, and water-source (i.e., geothermal) heat pumps up to 65 kBtuh with forced-air distribution systems (i.e., ducts) and to furnaces up to 225 kBtuh with forced-air distribution systems (i.e., ducts). For all other permutations of equipment (e.g., boilers, mini-split / multi-split systems) and distribution systems, Section 1 and 2 are required and Sections 3 through 5 are recommended, but not required.
00631	**09/01/2017**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Conditioning Energy Recovery Ventilation Systems**
				Issue: A partner has asked whether the HVAC Design Report must be completed for a Conditioning Energy Recovery Ventilation (CERV) system.
				Resolution: For the purposes of this program, a Conditioning Energy Recover Ventilator (CERV) is considered a ventilation system. Therefore, if a CERV is in the home, and none of the applicable HVAC systems listed in Footnote 1 of the HVAC Commissioning Checklist are in the home, then only Sections 1 and 2 are required to be completed for the home.
00632	**09/01/2017**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Change**	**How to Document Jurisdiction-Specified Design Temperature**
				Issue: Partners have asked which outdoor design temperature to use in load calculations when a temperature specified by their local jurisdiction exceeds the limit found in the ENERGY STAR Certified Homes Design Temperature Limit Reference Guide.
				Resolution: As noted at energystar.gov/hvacdesigntemps, "If the outdoor design temperatures to be used in load calculations are specified by the jurisdiction where the home will be certified, then these specified temperatures shall be used." If a jurisdiction-specified design temperature is used that exceeds the limit defined in the ENERGY STAR Certified Homes Design Temperature Limit Reference Guide, then a Design Temperature Exception Request shall be submitted. To reflect this policy, the following phrase will be added to energystar.gov/hvacdesigntemps:

				"If a jurisdiction-specified design temperature is used that exceeds the limit defined in the ENERGY STAR Certified Homes Design Limit Temperature Reference Guide, designers must submit a Design Temperature Exception Request." In addition, the following will be added to Footnote 12: "If a jurisdiction-specified design temperature is used that exceeds the limit defined in the ENERGY STAR Certified Homes Design Temperature Limit Reference Guide, designers must submit a Design Temperature Exception Request."
00633	**09/01/2017**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Item 3.3 and Footnote 12 – Design temperature limits added for US Territories**
				Issue: The Design Temperature Limit Reference Guide was updated to include design temperature limits for US Territories, in addition to the limits already included for counties and states. Currently, Item 3.3 and Footnote 12 only reference counties and states.
				Resolution: The reference to 'County & State' in Item 3.3 will be updated to read 'County & State, or US Territory' to reflect the inclusion of territories in the Design Temperature Limit Reference Guide. Additionally, the second sentence of Footnote 12 will be revised to reflect this inclusion, as follows: "For 'County & State, or US Territory, selected', select the County and State or US Territory (i.e., Guam, Northern Mariana Islands, Puerto Rico, or US Virgin Islands), where the home is to be certified."
00585	**06/03/2016**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Change**	**Item 4.21 - Increased sizing allowance for furnaces paired with cooling**
				Issue: Partners have indicated that the current over-sizing limit for furnaces paired with cooling is too restrictive in some circumstances. Item 4.21 indicates that the heating sizing limit for furnaces paired with cooling is recommended to be 100-140% and allowed to be 100-200%. This is consistent with the sizing limits in the latest edition of ACCA Manual S. However, in cases where the cooling load is substantially larger than the heating load, partners have indicated that it is difficult to find equipment that is right-sized for both the cooling and heating load. Manufacturers generally don't produce furnace models with large fans and small burner capacities. As a result, over-sized furnaces are selected because they contain larger fans, which are required to be paired with the larger condensers needed in cooling-dominated climates.
				Resolution: The over-sizing limit for furnaces will be adjusted to reflect the limited product availability that meets the ACCA Manual S over-sizing limit of 200% in cooling dominated climates. While designers are encouraged to meet ACCA Manual S limits whenever possible, this higher threshold will provide needed flexibility to meet program requirements. To reflect this change, Item 4.21 will be revised. The sizing limit for equipment when it's paired with cooling will read:

				"Recommended: 100-140% Allowed: 100-400%"
00634	**09/01/2017**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Item 4.5 - Alternative documentation to AHRI Reference #**
				Issue: Partners have asked whether a home can be certified using an HVAC system that does not have an AHRI Reference # or OEM-provided documentation. They have also asked, if an AHRI Reference # is not available, what alternative documentation from the OEM would satisfy the intent of this requirement?
				Resolution: This Item currently requires the AHRI Reference # to be documented. Footnote 21 provides additional guidance, stating that, "Evaporators and condensing units shall be properly matched as demonstrated by an AHRI Reference #. If an AHRI Reference # isnot available, a copy of OEM-provided catalog data indicating acceptable combination selection and performance data shall be attached." An AHRI Reference # references a specific AHRI certificate, which provides two valuable pieces of information: • The rated efficiency (e.g., EER, SEER) of that specific combination of evaporator and condenser. The rated efficiency is needed to complete accurate energy modeling for the home. • Confirmation that the specific combination of evaporator and condenser are intended to be used together. This is implied, because it is assumed that an OEM would not document the rated efficiency of a specific combination of evaporator and condenser if it was not intended to be used. Therefore, while an AHRI Reference # may be the simplest way to demonstrate that this information is available, other forms of documentation from the OEM may also be able to demonstrate this. There is no prescribed format that that documentation must follow. For example, it could be a rating certificate from an entity other than AHRI, or a letter from the OEM with the required information. The key point is that the OEM documentation must contain the rated efficiency of the equipment combination and confirmation that the two components are designed to be used together. With this in mind, a home cannot be certified using an HVAC system that does not have an AHRI Reference # or OEM-provided documentation. As an alternate to an AHRI Reference #, documentation from the OEM may be used if it provides the rated efficiency of the specific combination of indoor and outdoor components of the air conditioner or heat pump, along with confirmation that the two components are designed to be used together. To clarify the intent of Footnote 21, it will be revised as follows: "If an AHRI Reference # is not available, OEM-provided documentation shall be attached with the rated efficiency of the specific combination of indoor and outdoor components of the air

				conditioner or heat pump, along with confirmation that the two components are designed to be used together."
00667	**06/29/2018**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Item 5.5 - Increased size of the room-by-room airflow table**
				Issue: A partner has requested that the table for documenting room-by-room airflows in Item 5.5 be edited to accommodate more rooms. The table currently has space for 23 rooms, and the partner indicated that they occasionally need to document design airflow for more than 23 rooms. Additionally, the corresponding Footnote 26 allows designers to provide supplemental documentation for Item 5.5, and the partner asked EPA to provide a template that could be used for this supplemental documentation.
				Resolution: To allow documentation of design airflows for more rooms, the table in Item 5.5 will be edited to include space for up to 32 rooms. Additionally, a template will be provided that partners may use to provide supplemental documentation of room-by-room and total design airflows per Footnote 26. This supplemental documentation will be provided at: www.energystar.gov/newhomeshvacdesign. The following sentence will be added to Footnote 26 to indicate the location of this new document: "Sample supplemental documentation can be found at www.energystar.gov/newhomeshvacdesign."
00703	**09/01/2018**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Change**	**Reference added to 2016 version of ASHRAE 62.2 alongside 2010 and 2013 versions**
				Issue: Partners have asked if they are permitted to use the 2016 version of ASHRAE 62.2, in addition to the 2010 and 2013 versions, and published addenda.
				Resolution: Because of the significant differences to the ASHRAE 62.2 standard that can occur due to the release of new addenda and new versions, it will be clarified that partners are permitted to, but are not required to, use the latest version (i.e., ASHRAE 62.2-2016) of the standard. To reflect this change, the document will be updated as follows: • Footnote 1 will be revised to say that the report is "...designed to meet ASHRAE 62.2-2010 / 2013 / 2016...". • Item 2.1 will be revised to require that the designer verify that the "Ventilation airflow design rate & run-time meet the requirements of ASHRAE 62.2-2010, 2013, or 2016". • Footnote 6 will be revised to say "...Designers are permitted, but not required, to use published addenda and/or the 2013 or 2016 version of the standard to assess compliance." All remaining references to "ASHRAE 62.2-2010" are simply definitions and will remain unchanged.

00704	**09/01/2018**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Footnote 1 - Revision of occupant behavior language**
				Issue: This Footnote acknowledges that the features included in a certified home cannot, on their own, prevent all potential ventilation, indoor air quality, or HVAC problems, "(e.g., those caused by a lack of maintenance by occupants)". The language in the parenthesis implies that this lack of maintenance is only caused by the occupant, whereas maintenance may either be the responsibility of the occupant or another party such as a facilities manager. At the same time, occupant behavior must be acknowledged as a potential factor in the performance of a home. Therefore, this language needs to be refined.
				Resolution: In order to more accurately describe this possibility, the language in the parenthesis of Footnote 1 will be refined as follows: "(e.g., those caused by a lack of maintenance or occupant behavior)."
00705	**09/01/2018**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Change**	**Footnote 2 - Increased Tolerance for Conditioned Floor Area**
				Issue: Partners have noted an issue with the allowable tolerance between the conditioned floor area used in loads and that of the home to be certified. The allowable tolerance does not permit the conditioned floor area used in the loads to be any smaller than the home to be certified, even when such a deviation will not significantly affect the load. For example, if the designer calculates conditioned floor area by measuring from the interior drywall to interior drywall, while the Rater measures from the exterior to the exterior, the designer will end up with a smaller conditioned floor area, resulting in a failure despite negligible impacts on the load calculation.
				Resolution: The tolerance will be changed to allow the conditioned floor area used in loads to fall between 100 sq. ft smaller and 300 sq. ft. larger than the home to be certified. This change recognizes that if the conditioned floor area used in the loads is slightly smaller than the home to be certified, the overall accuracy of the load will not be greatly compromised. To reflect this change, the third bullet in Footnote 2 will be revised to read: "Item 3.5: The conditioned floor area used in loads is between 100 sq. ft. smaller and 300 sq. ft. larger than the home to be certified."
00706	**09/01/2018**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Change**	**Footnote 2- Increased tolerance for window area**
				Issue: Partners have noted two issues with the allowable tolerance between the window area used in loads and that of the home to be certified. The first issue is that the low-end tolerance does not permit the window area used in the loads to be any smaller than the home to be certified, even when such a deviation will not significantly affect the load. For example, if the designer calculates the load with even one less

				sq. ft. of window area than what the home to be certified contains (e.g., due to an imprecise take-off), then the home would not strictly meet the intent of this item. The second issue is that as the window area in the home increases, the fixed tolerances become increasingly restrictive. That is to say, while the high-end tolerance of 60 sq. ft. may be routinely achievable for a typical home, as the window area increases the 60 sq ft. tolerance becomes a smaller percentage of the overall window area. Outreach was conducted with multiple partners in different climate zones. Partners indicated that it would be helpful to increase the low-end tolerance to allow the window area used in the loads to be slightly smaller than the home to be certified. Partners also indicated that adding a percent-based tolerance would be helpful to address the second issue.
				Resolution: The tolerance will be changed to allow the window area used in loads to fall between 15 sq. ft. smaller and 60 sq. ft. larger than the home to be certified. This change recognizes that if the window area used in the load calculations is slightly smaller than the home to be certified, the overall accuracy of the load will not be greatly compromised. Additionally, for homes to be certified with greater than 500 sq. ft. of window area, the tolerances will be changed to use a percentage of window area. To reflect this change, the fourth bullet in Footnote 2 will be revised to read: "Item 3.6: The window area used in loads is between 15 sq. ft. smaller and 60 sq. ft. larger than the home to be certified, or, for homes to be certified with > 500 sq. ft. of window area, between 3% smaller and 12% larger."
00768	**09/01/2018**	**HVAC Design Report (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Footnote 13 - References updated to latest RESNET standard**
				Issue: This document contains a reference to the "RESNET Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Therefore, the current reference is outdated.
				Resolution: The reference to the "RESNET Standard" will be updated to the ANSI-standard version. To reflect this change, the following edit will be made: Footnote 13: "…A bedroom is defined by ANSI / RESNET / ICC Standard 301-2014 as…"
00668	**06/29/2018**	**HVAC Commissioning Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to "National HVAC Commissioning Checklist (Version 3 / 3.1, Rev. 08)". Additionally, any references to this document in other program documents will be updated to use the updated title.

00657	**04/11/2018**	**HVAC Commissioning Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**HVAC system with redundant sets of heating / cooling equipment is allowed**
				Issue: A partner has asked whether a home with an HVAC system comprised of multiple, redundant, sets of heating and cooling equipment serving a single zone is eligible to be certified. Such a system, which is very uncommon in the residential sector, would allow the first set of equipment to operate until failure and then allow the second set to operate. Currently, the program requirements do not address such an HVAC system. Furthermore, the HVAC Commissioning Checklist does not have space for documenting multiple, redundant, sets of heating and/or cooling equipment.
				Resolution: A home with an HVAC system comprised of multiple, redundant, sets of heating and/or cooling equipment is eligible for certification, so long as all applicable requirements are met. When the HVAC system is designed to have redundant heating and/or cooling equipment (i.e., the multiple sets of heating and/or cooling equipment would not run at the same time), the HVAC installing contractor shall complete separate HVAC Commissioning Checklists, with each document associated with one set of heating and/or cooling equipment.
00653	**02/07/2018**	**HVAC Commissioning Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Exemption of ducted mini-split / multi-split air conditioners and heat pumps**
				Issue: Partners have noted that the current definition of mini-split / multi-split air conditioners and heat pumps provided in Policy Record entry #00330 includes an illustrative example of common duct length (e.g., 10 ft.). They have asked whether the length of the duct system is a determinant for meeting the definition of a mini-split / multi-split system. When the definition for this system type was created, most if not all mini-split and multi-split systems were constrained to limited duct runs because of the low static pressure limit of the fan. For most systems today, that is still the case. However, a new system type has emerged. While these systems maintain the variable refrigerant flow and distributed refrigerant technology with the capability of serving multiple indoor sections with a single outdoor section, the indoor sections are equipped with more powerful fans that can serve extended duct runs. It is for this emerging system type that the current policy is unclear.
				Resolution: Whether the length of the duct system is short or long on a mini-split / multi-split HVAC system, it does not change the overall rationale for exempting them. Furthermore, the 10 ft. limit was intentionally written as an example, using, “e.g.”, as opposed to an explicit limit. Therefore, while such systems typically have limited duct runs, the length of the duct system was not intended to be a determinant for meeting this definition. To convey this intent, the definition of a mini-split / multi-split system will be revised, as follows. With regards to mini-split / multi-split air conditioners and heat pumps, for the purposes of the ENERGY STAR Certified Homes program, the following definition will be assumed for this system type:

				"Mini-split / multi-split air conditioners and heat pumps have variable refrigerant flow and distributed refrigerant technology with the capability of serving multiple indoor sections with a single outdoor section. The indoor sections are typically, but not exclusively, mounted on room walls and/or ceilings and designed to heat or cool air within the conditioned space either directly or through limited duct runs. While duct runs are often limited to ≤ 10 ft., the length of the duct system is not a determinant for meeting this definition."
00650	**12/13/2017**	**HVAC Commissioning Checklist (Version 3 / 3.1, Rev. 08)**	**Change**	**Three-year retention period for HVAC Commissioning Checklist**
				Issue: Partners have asked how long the HVAC Design Report and HVAC Commissioning Checklist must be retained by the HVAC contractor.
				Resolution: RESNET requires the QA Record for each home to be maintained for a minimum of three years. Requiring the contractor to retain their documentation for the same period of time will ensure that if any quality assurance activities are initiated on a home, the relevant documentation from the contractor will be accessible if needed. To reflect this change, the header of the HVAC Commissioning Checklist will be revised as follows: "The completed checklist for each commissioned system, along with the corresponding HVAC Design Report, shall be retained by the contractor for a minimum of three years for quality assurance purposes. Furthermore, the contractor shall provide the completed checklist to the builder, the Home Energy Rater responsible for certifying the home, and the HVAC oversight organization upon request."
00635	**09/01/2017**	**HVAC Commissioning Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Conditioning Energy Recovery Ventilation Systems**
				Issue: A partner has asked whether the HVAC Commissioning Checklist must be completed for a Conditioning Energy Recovery Ventilation (CERV) system.
				Resolution: For the purposes of this program, a Conditioning Energy Recover Ventilator (CERV) is considered a ventilation system. Therefore, if a CERV is in the home, and none of the applicable HVAC systems listed in Footnote 1 are in the home, then the HVAC Commissioning Checklist is not required for the home, nor is a credentialed contractor.
00658	**04/11/2018**	**HVAC Commissioning Checklist (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Credential not required for hydro-coil systems**
				Issue: A partner asked whether a hydro-coil system is exempt from the requirement to use a credentialed HVAC contractor. Hydro-coil systems typically connect a home's domestic hot water heater to the HVAC system with a hydronic loop, such that the HVAC system can blow air across the hot coil to heat the home. Footnote 1 provides a list of system types that are

				applicable to this checklist and states that all other system types are exempt, giving several examples. Hydro-coil systems are not explicitly mentioned in this checklist.
				Resolution: Because a hydro-coil system is not an air conditioner, a heat pump, or a furnace, it is not one of the system types explicitly listed as applicable in Footnote 1. Therefore, if a hydro-coil system is used in a dwelling unit, and none of the applicable HVAC systems listed in Footnote 1 are used in a dwelling unit, then this checklist is not required, nor is a credentialed contractor.
00707	**09/01/2018**	**HVAC Commissioning Checklist (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Footnote 1 - Revision of occupant behavior language**
				Issue: This Footnote acknowledges that the features included in a certified home cannot, on their own, prevent all potential ventilation, indoor air quality, or HVAC problems, "(e.g., those caused by a lack of maintenance by occupants)". The language in the parenthesis implies that this lack of maintenance is only caused by the occupant, whereas maintenance may either be the responsibility of the occupant or another party such as a facilities manager. At the same time, occupant behavior must be acknowledged as a potential factor in the performance of a home. Therefore, this language needs to be refined.
				Resolution: In order to more accurately describe this possibility, the language in the parenthesis of Footnote 1 will be refined as follows: "(e.g., those caused by a lack of maintenance or occupant behavior)."
00474	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Transition to HVAC Design Report and HVAC Commissioning Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Contractor Checklist, partners have suggested that the design-related items be transitioned to one program document, that the commissioning-related items be transitioned to a second program document, and that the amount of supplemental documentation be reduced.
				Resolution: 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 will migrate to two new program documents - the HVAC Design Report and the HVAC Commissioning Checklist. The HVAC Design Report will contain the design-related Items from the HVAC System QI Contractor Checklist and will continue to be completed by the HVAC designer once per system design. Responsibilities of the designer will be added to the top of the HVAC Design Report, in lieu of Footnotes 4-6, as follows: "• Complete one HVAC Design Report for each system design for a house plan, created for either the specific plan configuration (i.e., elevation, option, orientation, & county) of the home to be certified or for a plan that is intended to be built with potentially different configurations

				(i.e., different elevations, options, and/or orientations). Visit www.energystar.gov/newhomeshvacdesign and see Footnote 2 for more information. 2 • Obtain efficiency features (e.g., window performance, insulation levels, and infiltration rate) from the builder or Home Energy Rater. • Provide the completed HVAC Design Report to the builder or credentialed HVAC contractor and to the Home Energy Rater." The HVAC Commissioning Checklist will contain the commissioning-related Items from the HVAC System QI Contractor Checklist and will continue to be completed by a credentialed HVAC contractor for each HVAC system. Responsibilities of the commissioning contractor will be added to the top of the HVAC Commissioning Checklist, in lieu of Footnotes 4-6, as follows: "• The commissioning contractor must be credentialed by an HVAC oversight organization to complete this checklist. One checklist must be completed and signed by the commissioning contractor for each HVAC system that is commissioned. • The completed checklist for each commissioned system, along with the corresponding HVAC Design Report, shall be retained by the contractor for quality assurance purposes. Furthermore, the contractor shall provide the completed checklist to the builder, the Home Energy Rater responsible for certifying the home, and the HVAC oversight organization upon request. • Visit www.energystar.gov/newhomeshvac for information about the credential requirement and this checklist." Detailed modifications to Items, Sections, and Footnotes are described in the entries below along with a description of their new location on the HVAC Design Report or the HVAC Commissioning Checklist.
00475	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Clarification**	**Single person or company serving as Rater and HVAC contractor**
				Issue: Partners have asked whether a single person or company is permitted to complete both the HVAC System QI Contractor Checklist and the HVAC System QI Rater Checklist.
				Resolution: Currently, there is no policy that prohibits a single person or company from completing both HVAC System QI Contractor Checklist and the HVAC System QI Rater Checklist. Therefore, a single person or company could completed both, so long as the company has met RESNET's requirements for Raters and an HVAC Oversight Organization's (HQUITO's) requirements for contractors.
00476	**07/01/2015**	**HVAC System Quality Installation**	**Change**	**Checklist Header – Transition to Section 1 of the HVAC Design Report and the HVAC Commissioning Checklist**

		Contractor Checklist (Version 3, Rev. 07)		**Issue:** Partners have noted that several key fields are included in the header of the HVAC System QI Contractor Checklist, which might be overlooked because they are not assigned to specific Item numbers.
				Resolution: To ensure that critical fields that provide an overview of the design and commissioning process are not overlooked, Section 1 will be created in the HVAC Design Report to encompass the Design Overview information and Section 1 will be created in the HVAC Commissioning Checklist to encompass the Commissioning Overview information. The fields in the header of the Checklist related to system description and temporary occupant loads will be assigned to new Items in Section 1 of the HVAC Design Report. Furthermore, to clarify the original intent of "system description", that field will be reworded. The new Items will read as follows: Item 1.4: "Area that system serves: ☐ Whole-house ☐ Upper-level ☐ Lower-level ☐ Other __" Item 1.5: "Is cooling system for a temporary occupant load? ☐ Yes ☐ No" To further document important design overview information, three new Items will be added to Section 1 of the HVAC Design Report to capture the designer's name, company, date of design, whether their client is a builder or credentialed HVAC contractor, and the name of that client. These fields will read as follows: Item 1.1: "Designer name: _____ Designer company: _____ Date: ____" Item 1.2: "Select which party you are providing these design services to: ☐ Builder or ☐ Credentialed HVAC contractor" Item 1.3: "Name of company you are providing these design services to (if different than Item 1.1): " The address of the home, which is applicable to the commissioning process, will be moved to Item 1.4 of the HVAC Commissioning Checklist: "1.4 Home address: _____ City: _____ State: _____ Zip code: ____" To document the commissioning contractor completing the HVAC Commissioning Checklist, several fields from the signature block will be moved to three new Items in the HVAC Commissioning Checklist, as follows: 1.1: "Contractor name_____ Contractor company_____ Date____" 1.2: "Organization that your company is credentialed with: ☐ ACCA ☐ Advanced Energy ☐ NYSERDA" 1.3: "Builder client name: _____"

				To better associate the HVAC Commissioning Checklist with a particular HVAC Design Report, three additional Items will be added to the HVAC Commissioning Checklist, as follows: 1.5: "HVAC Design Report corresponding to this system has been collected from designer or builder. ☐ Contractor-verified" 1.6: "Area that system serves, per Item 1.4 of HVAC Design Report: ☐ Whole-house ☐ Upper-level ☐ Lower-level ☐ Other _____" 1.7: "House plan, per Item 1.6 of HVAC Design Report:_____ ☐ Site-specific design ☐ Group design #: _____"
00044	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Comment**	**HVAC contractor training and credentialing**
				Issue: Partners have asked if HVAC contractors who only install ventilation systems or local mechanical exhaust must still be credentialed. Similarly, for homes with hydronic heating (e.g., a boiler) and no air conditioning, partners have asked if a credentialed HVAC contractor must still be used to design and install the ventilation and exhaust system.
				Resolution: At this time, in order to verify any items on the HVAC System Quality Installation Contractor Checklist, the contractor must complete the necessary training and credentialing. Even if the contractor only installs a whole house ventilation system, they must hold the proper credentials. However, EPA is considering whether to allow alternate credentials to be used for homes in certain circumstances, such as homes with hydronic heating and no air conditioners (where the mechanical ventilation system is the only applicable portion of the contractor checklist) or for parties that only complete the HVAC design and not the installation or commissioning of equipment.
00132	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Required credentials for HVAC contractors serving multiple markets**
				Issue: Partners have asked if HVAC contractors working in multiple markets must attend a training session for each market that they serve.
				Resolution: HVAC contractors that complete the HVAC System QI Contractor Checklist must be credentialed by an EPA-recognized industry oversight organization. The credential is awarded to companies, not to individuals, and applies to all markets served by credentialed companies. As part of the credentialing process, contractors will typically need to attend a short training explaining the application process, but this is just one step in the larger credentialing process. For more information regarding the HVAC credentialing requirements visit www.energystar.gov/newhomesHVAC.
00133	**01/15/2012**	**HVAC System Quality Installation**	**Change**	**Required credentials for HVAC designers and Raters and applicability of Checklist to whole-house mechanical ventilation system design and installation**

		Contractor Checklist (Version 3, Rev. 04)		**Issue:** Partners have asked several questions related to HVAC credentialing: 1. For some homes, the HVAC design and HVAC installation are completed by two independent companies. Partners have asked if both entities must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). This question is of particular relevance to heating, cooling, and ventilation designers that do not install equipment because many elements of the currently available credential (e.g., fleet management, hazardous materials regulations, safety programs) are not relevant to such companies. 2. Footnote 1 allows Raters to verify items on the Checklist. Partners have asked if there are any restrictions on the number of items that Raters are permitted to verify and if there are any items that Raters are not permitted to verify because they require specialized training and knowledge (e.g., refrigerant testing). Some homes are built with hydronic heating systems and no air conditioning, so that the only forced-air system other than local mechanical exhaust is whole-house mechanical ventilation. Partners have asked which parts of the HVAC System Quality Installation Contractor Checklist must be completed in this case and, for the parts that must be completed, which must be completed by a credentialed HVAC contractor.
				Resolution: The intent of the HVAC credentialing requirement is to ensure that firms have adequate standards and processes in place to properly perform their work, to provide oversight through quality assurance activities, to provide a complaint resolution process, and to recognize firms that voluntarily hold themselves to these standards. The intent was not to prescribe a particular business model (i.e., a contractor who both designs and installs heating, cooling, and ventilation systems). Therefore, until credentials are available specifically for heating, cooling, and ventilation system designers, either the builder (or a firm or HERS Rater hired by the builder) or the credentialed HVAC contractor (or a firm or HERS Rater hired by the credentialed contractor) shall be permitted to design such systems and to complete Sections 1 through 5 of the HVAC System Quality Installation Contractor Checklist. As always, the designer must comply with applicable codes and laws that regulate HVAC designers and HVAC designs. When a credentialed contractor retains an uncredentialed company or HERS Rater to design systems and complete any items in Section 1 through 5, the credentialed contractor shall be responsible for ensuring that the work complies with the Checklist and that the Checklist has been completed, including preparing the documentation required by Items 1.3, 2.18, and 3.15. In essence, the responsibilities of the contractor have not changed. Rather, this resolution clarifies that credentialed contractors are permitted to retain a design company, even if that company is not itself credentialed. When a builder retains an uncredentialed company or utilizes in-house staff or a HERS Rater, the builder shall be responsible for ensuring that the work complies with the Checklist and that

				the Checklist has been completed, including preparing the documentation required by Items 1.3, 2.18, and 3.15. In both cases, Sections 6 through 12 of the Checklist may only be completed by a credentialed HVAC contractor. If there are no forced-air heating or cooling systems in the home, then Section 1 is the only section of the Checklist that must be completed. This is true even in such homes that use a forced-air ventilation system, because ASHRAE 62.2-2010 does not prescribe room-level duct design requirements for the ventilation system. The second through fourth paragraphs of Footnote 1 will be combined and revised to add the guidance on ventilation systems and to remove the guidance related to Raters (which will be relocated to Footnotes 5 and 6): “This Checklist applies to ventilation systems, split air conditioners, unitary air conditioners, air-source / water-source (i.e., geothermal) heat pumps up to 65,000 Btu / h and furnaces up to 225,000 Btu / h. All other equipment, including boilers, is exempt. If the ventilation system is the only applicable system installed in the home, then only Section 1 shall be completed.” “One Checklist shall be completed for each system and provided to the Rater. This Checklist with supporting documents may also be used to demonstrate compliance with Indoor airPLUS specifications 4.1, 4.2, 4.5, 4.6, and 7.1.” Footnote 4 will be revised to align with this policy change allowing builders, credentialed contractors, and firms that they hire to perform HVAC design: “The person responsible for the heating, cooling, and ventilation design shall be responsible for completing Sections 1 and 2 of this Checklist.” Footnote 6 will be revised to clarify the credentialed HVAC contractor’s responsibility: “The ‘Cont. Verified’ column shall be used to indicate items verified by the credentialed HVAC contractor (or a firm or HERS Rater hired by the contractor). The credentialed contractor is responsible for these Items and shall sign the bottom of this Checklist.” The second verification column on the Checklist will be revised from “Rater Verified” to “Builder Verified” so that the “Builder Verified” and “Cont. Verified” columns reflect the parties responsible for the completion of the Checklist. A new footnote will be added to the “Builder Verified” column to clarify the builder’s responsibility: “The ‘Builder Verified’ column shall be used to indicate items verified by the builder (or a firm or HERS Rater hired by the builder). The builder is responsible for these Items and must sign the bottom of this Checklist if any items in Sections 1 through 5 on this Checklist have been marked ‘Builder Verified’. Only credentialed contractors may complete Items in Sections 6-10.” The signatures at the bottom of the Checklist will be revised to collect the name, signature, and date of signature of representatives of the credentialed HVAC contractor and the builder. Footnote 25 will be applied to the builder name, signature, and date of signature, and will

				explain that the builder's signature is only required if items on the Checklist have been marked "Builder Verified.": "Builder name, signature, and signature date are required if any items in Sections 1 through 5 have been marked 'Builder Verified'."
00477	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Section 1 – Transition to Section 2 of the HVAC Design Report**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Contractor Checklist, partners have suggested that the design-related items be transitioned to one program document, that the commissioning-related items be transitioned to a second program document, and that the amount of supplemental documentation be reduced.
				Resolution: As part of an overall transition from the HVAC System QI Contractor Checklist to the HVAC Design Report and HVAC Commissioning Checklist, Section 1 will be moved to Section 2 of the HVAC Design Report. The overall intent of this Section will not change. However, the new Section will more clearly list the whole-building mechanical ventilation requirements. Item 1.1, representing the overall requirement to meet ASHRAE 62.2, will be reflected in the expanded Items contained within Section 2 of the HVAC Design Report and by a clarification to Footnote 1, the beginning of which will be revised as follows: "This report is designed to meet ASHRAE 62.2..," Item 1.2 will be moved to Item 2.8 of the HVAC Design Report. In addition, this Item will be revised to clarify that no outdoor air intakes shall be designed to connect to the return side of the HVAC system, unless specified controls operate intermittently and automatically based on a timer and restrict intake when not in use (e.g., motorized damper). The revised Item will read as follows: "No outdoor air intakes designed to connect to the return side of the HVAC system, unless specified controls operate intermittently and automatically based on a timer and restrict intake when not in use (e.g., motorized damper)." Item 1.3 will be revised and divided into five Items, Items 2.1, 2.2, 2.3, 2.4 and 2.5 of the HVAC Design Report. These new Items will clearly state the requirement that the airflow and run-time of the ventilation system must meet ASHRAE 62.2 and will require the HVAC designer to document the continuous ventilation rate required by 62.2; the design ventilation rate, run-time per cycle, and cycle time selected; the specified system type; and the specified control location. As a result of these revisions, no separate documentation about the ventilation system design will be required. These revised Items will read as follows:

				2.1: “Ventilation airflow design rate & run-time meet the requirements of ASHRAE 62.2-2010 or 2013” 2.2: “Ventilation airflow rate required by 62.2 for a continuous system _ CFM” 2.3: “Design for this system: Vent. airflow rate: _ CFM Run-time per cycle: _ min Cycle time: _ min.” 2.4: “Specified system type: ☐ Supply ☐ Exhaust ☐ Balanced “ 2.5: “Specified control location: _(e.g., Master bath, utility room)” A Footnote will be added to Item 2.1 to clarify that partners are permitted to, but are not required to, use the latest version and addenda of ASHRAE Standard 62.2 to determine the airflow design rate and run-time, as follows: “Airflow design rates and run-times shall be determined using ASHRAE 62.2-2010 or later. Designers are permitted, but not required, to use published addenda and/or the 2013 version of the standard to assess compliance.” Items 1.4 and 1.5 will be represented by a single new Item, Item 2.6 of the HVAC Design Report, which will read as follows: “Specified controls allow the system to operate automatically, without occupant intervention.” Finally, Item 2.7 and Items 2.9 through 2.13 will be added to the HVAC Design Report to define requirements for override controls and labeling, sound limits, efficiency, and air inlets. While these requirements are already implied because they are either within ASHRAE 62.2, are required within the current Footnotes, or are already explicitly verified by the Rater, their addition to the main body of the HVAC Design Report will help ensure compliance. These Items will read as follows: Item 2.7: “Specified controls include a readily-accessible ventilation override and a label has also been specified if its function is not obvious (e.g., a label is required for a standalone wall switch, but not for a switch that’s on the ventilation equipment)” Item 2.9: “The fan of the specified system is rated ≤ 3 sones if intermittent and ≤ 1 sone if continuous, or exempted” A Footnote will be added to this Item to clarify the intent of this Item and to provide an exemption for certain fan types, as follows: “Whole-house mechanical ventilation fans shall be rated for sound at no less than the airflow rate in Item 2.3. Fans exempted from this requirement include HVAC air handler fans, remote-mounted fans, and intermittent fans rated ≥ 400 CFM. To be considered for this exemption, a remote-mounted fan must be mounted outside the habitable spaces, bathrooms, toilets, and hallways and there shall be ≥ 4 ft. ductwork between the fan and intake grill. Per ASHRAE 62.2-2010, habitable spaces are intended for continual human occupancy; such space

				generally includes areas used for living, sleeping, dining, and cooking but does not generally include bathrooms, toilets, hallways, storage areas, closets, or utility rooms." Item 2.10: "If system utilizes the HVAC fan, then the specified fan type in Item 4.7 is ECM / ICM, or the specified controls will reduce the standalone ventilation run-time by accounting for hours when the HVAC system is heating or cooling" Item 2.11: "If bathroom fans are specified as part of the system, then they are ENERGY STAR certified" A Footnote will be added to this Item to provide an exemption for bath fans with a rated flow ≥ 500 CFM, as follows: "Bathroom fans with a rated flow rate ≥ 500 CFM are exempted from the requirement to be ENERGY STAR certified." Item 2.12: "Inlet pulls ventilation air directly from outdoors and not from attic, crawlspace, garage, or adjacent dwelling unit" Item 2.13: "Inlet is ≥ 2 ft. above grade or roof deck; ≥ 10 ft. of stretched-string distance from known contamination sources (e.g., stack, vent, exhaust, vehicles) not exiting the roof, and ≥ 3 ft. from known sources exiting the roof" A Footnote will be added to the header of Item 2.12 and 2.13 to recommend, but not require, that ventilation inlets be located so as to facilitate access and regular maintenance, as follows: "Without proper maintenance, ventilation air inlet screens often become filled with debris. Therefore, EPA recommends, but does not require, that these ventilation air inlets be located so as to facilitate access and regular service by the owner."
00134	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Section 1 – ASHRAE 62.2-2010**
				Issue: Partners have asked where they can obtain a copy of ASHRAE 62.2.-2010: Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.
				Resolution: ASHRAE 62.2-2010 can be previewed and purchased at http://openpub.realread.com/rrserver/browser?title=/ASHRAE_1/ashrae_62_2_2010_1024.
00217	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Comment**	**Section 1 - No maximum allowable ventilation rate**
				Issue: Partners have asked if there is a maximum allowable ventilation rate that must not be exceeded in order to certify a home.
				Resolution: Section 1 of the checklist requires a ventilation system installed that has been designed to meet ASHRAE 62.2-2010. ASHRAE 62.2-2010 specifies a minimum ventilation rate that must be met, but it does not specify a maximum ventilation rate. Therefore, a home must meet the minimum ventilation rate specified by ASHRE 62.2-2010, but there is no maximum allowable ventilation rate that must not be exceeded in order to certify a home.

				However, it is important to recognize that ventilation rates above the minimum requirements of ASHRAE 62.2-2010 may increase the latent and sensible loads in the home as well as the energy consumption of the ventilation system. Therefore, EPA recommends that designers consider these factors when selecting the design ventilation rate.
00325	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Comment**	**Section 1 – The use of exhaust–only whole-house ventilation systems and air inlets**
				Issue: Partners have asked if the use of an exhaust–only whole-house ventilation system is permitted and, if so, whether a ventilation air inlet is required.
				Resolution: An exhaust-only whole-house mechanical ventilation system is permitted to be used to meet the intent of Section 1. A ventilation air inlet is not required to be used with such systems. However, if a partner chooses to include a ventilation air inlet in the home, then it must meet the requirements of Section 7 of the HVAC System QI Rater Checklist. This Section defines minimum required distances from known sources of contamination, minimum required distances above roof decks and grade, restrictions on obstructions, restrictions on sources of ventilation air, and a requirement for a rodent / insect screen.
00326	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Comment**	**Item 1.2 – Use of non-motorized damper on return side of HVAC system**
				Issue: Partners have asked if a whole-house ventilation system that utilizes an intake duct to the return side of the HVAC system with a non-motorized damper is permitted to meet Item 1.2.
				Resolution: A whole-house ventilation system that utilizes an intake duct to the return side of the HVAC system with a non-motorized damper is not permitted to be used to meet Item 1.2. As stated in Item 1.2, a whole-house ventilation system of this type must restrict outdoor air intake when not in use: "Ventilation system does not utilize an intake duct to the return side of the HVAC system unless the system is designed to operate intermittently and automatically based on a timer and to restrict outdoor air intake when not in use (e.g., motorized damper)."
00045	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 1.1 and 1.5 – Ventilation system requirements**
				Issue: Partners have asked whether Item 1.5 is a requirement that can be met in place of Item 1.1, which requires that a ventilation system be designed to meet ASHRAE 62.2-2010 requirements, or if Item 1.1 must always be met.
				Resolution: A whole-building mechanical ventilation system that meets the requirements of ASHRAE 62.2-2010 shall be installed in each qualified home. To improve clarity, Item 1.1 will be revised as follows: "Ventilation system installed that has been designed to meet ASHRAE 62.2-2010 requirements including, but not limited to, requirements in Items 1.2-1.5."

00046	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Change**	**Footnote 7 and 18 – HVAC design for multiple orientations**
				Issue: Partners have requested that EPA combine Footnotes 7 and 18, which relate to HVAC design, into a single footnote for clarity. Partners have also requested that EPA clarify the other design requirements for homes with multiple configurations or orientations and that some tolerance be provided when designing the duct system in order to minimize the number of different duct designs that need to be managed for a single plan.
				Resolution: Footnotes 7 and 18 will be combined into a single footnote, which will read as follows: "Heating and cooling loads shall be calculated, equipment shall be selected, and duct systems shall be sized according to the latest editions of ACCA Manuals J, S, & D, respectively, ASHRAE 2009 Handbook of Fundamentals, or a substantively equivalent procedure. The HVAC system design shall be completed for the planned orientation and configuration of the home except as permitted herein." "For house plans with multiple configurations or that may be built in more than one orientation, the loads shall be calculated for each potential orientation or alternate configuration. If the loads across all orientations vary by ≤ 25%, then the largest load shall be permitted to be used for equipment selection for all orientations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each orientation into a set with ≤ 25% variation and equipment selection shall be completed for each set of loads." "For house plans with multiple configurations or that may be built in more than one orientation, the room-level design airflows shall be calculated for each potential orientation or alternate configuration. If the design airflows for each room vary across all orientations and configurations by ≤ 25% or 25 CFM, then the average room-level design airflow shall be permitted to be used when designing the duct system. Otherwise, the contractor shall group the room-level design airflow for each orientation and configuration into a set with ≤ 25% or 25 CFM variation and the duct design shall be completed for the average airflow of that set."
00138	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Footnote 7 – Worst-case configurations in HVAC design**
				Issue: Partners have asked whether they can calculate loads and select equipment for a set of home plan configurations based on the worst-case configuration or if they must calculate loads and select equipment for each individual configuration instead. For example, if a plan can be built with either an unconditioned porch or an optional conditioned sun room, can loads be calculated and equipment be selected using the worst-case configuration, which will likely include the sunroom, even if the plan will sometimes be built without the sunroom?
				Resolution: Footnote 7 defines how loads are to be calculated for home plans built in different configurations based on the date of final inspection for the home: *"For homes with a date of final inspection through 12/31/2012:*

				"For each house plan with multiple configurations (e.g., orientations, elevations, options), the loads shall be permitted to be calculated for the configuration that will result in the largest load. The largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S. "For each house plan with multiple configurations, the room-level design airflows shall be permitted to be calculated using the configuration that resulted in the largest load. *"For homes with a date of final inspection on or after 01/01/2013*: "For each house plan with multiple configurations (e.g., orientations, elevations, options), the loads shall be calculated for each potential configuration. If the loads across all configurations vary by ≤ 25%, then the largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each configuration into a set with ≤ 25% variation and equipment selection shall be completed for each set of loads. "For each house plan with multiple configurations, the room-level design airflows shall be calculated for each potential configuration. If the design airflows for each room vary across all configurations by ≤ 25% or 25 CFM, then the average room-level design airflow shall be permitted to be used when designing the duct system. Otherwise, the contractor shall group the room-level design airflow for each configuration into a set with ≤ 25% or 25 CFM variation and the duct design shall be completed for the average airflow of that set." For homes that will have final inspection dates on or prior to 12/31/2012, loads can be calculated and equipment can be selected based on the worst-case configuration, subject to the oversizing limits of ACCA Manual S. In this case, the heating and cooling loads do not need to be calculated for every configuration; only the loads for the worst-case configuration may be calculated. In the case of a home plan with an optional sunroom, the sunroom will typically be part of the worst-case configuration. For homes with final inspection dates on or after 1/1/2013, however, the loads for each configuration must be calculated. The largest load is then permitted to be used to select equipment (subject to the oversizing limits of ACCA Manual S) only if the loads across all configurations vary by no more than 25%.
00047	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Comment**	**Item 1.1 – Required flow rate for mechanical ventilation systems** **Issue:** Partners have asked EPA how to calculate the required flow rate for intermittent and continuous ventilation systems under ASHRAE 62.2-2010. Partners have also asked if a control strategy in which the system delivers less than the required ventilation rate will meet the intent of Item 1.1.

				Resolution: The ASHRAE standard defines the minimum required ventilation flow rate based upon the floor area, number of bedrooms, duration of the cycle time (i.e., the total time for one on-cycle and one off-cycle), and the fraction of time that the system is on during each cycle. Partners should consult the standard for the relevant equations. Item 1.1 requires a control strategy that delivers at least 100% of the minimum required ventilation rate, so strategies that deliver less than that amount are not acceptable. That is not to say that the ventilation system must run every hour. Because the ASHRAE standard considers the duration of the cycle time and the fraction of time that the system is on during each cycle, it is possible to design a ventilation system that does not operate every hour yet meets the requirements of the ASHRAE standard.
00048	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Comment**	**Item 1.1 – Requirements for make-up air when using an exhaust-only ventilation system**
				Issue: Partners have asked if make-up air or air inlets are required for exhaust-only ventilation systems.
				Resolution: ASHRAE 62.2-2010 does not require air inlets for exhaust only systems as long as the delivered ventilation rate meets the design ventilation rate.
00135	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Item 1.1 – Whole house mechanical ventilation**
				Issue: Partners have asked if a whole-house mechanical ventilation system must be installed in a home, even if the home can provide the ventilation rate required by ASHRAE 62.2-2010 through infiltration alone without any mechanical systems.
				Resolution: The ventilation rate defined in ASHRAE 62.2-2010 was derived assuming a default level of infiltration. The committee recently clarified that, per Section 4.1.2 of that standard, Licensed Design Professionals may certify homes as ASHRAE 62.2 compliant when the sum of the designed/measured natural (i.e. infiltration) and mechanical ventilation of the home meets or exceeds the sum of the Infiltration Credit (Section 4.1.3) and Ventilation Rate (Section 4.1) of the same home; excess infiltration over and above the default rate being an acceptable method for meeting the required whole-house ventilation rates. With that said, homes with high infiltration rates may have difficulty meeting other program requirements, such as meeting the mandatory air sealing requirements in Section 5 of the Thermal Enclosure System Rater Checklist and the ENERGY STAR HERS index target. Therefore, it is unlikely that qualified homes will be able to be built without a whole-house mechanical ventilation system and EPA does not recommend this practice.
00478	**07/01/2015**	**HVAC System Quality Installation Contractor**	**Change**	**Section 2 – Transition to Section 3 of the HVAC Design Report**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Contractor Checklist, partners have

		Checklist (Version 3, Rev. 07)		suggested that the design-related items be transitioned to one program document, that the commissioning-related items be transitioned to a second program document, and that the amount of supplemental documentation be reduced.
				Resolution: As part of an overall transition from the HVAC System QI Contractor Checklist to the HVAC Design Report and HVAC Commissioning Checklist, Items in Section 2 related to load calculations will be moved to Section 3 of the HVAC Design Report. Remaining Items in Section 2 related to equipment selection will be moved to Section 4 and Items related to duct design will be moved to Section 5 of the HVAC Design Report. The overall intent of this Section will not change. However, various Items will be clarified, added, and deleted in an attempt to represent the most important design parameters The design parameters listed in the header of Section 2 will be deleted, because they are generally already represented by specific Items on the Checklist. However, Item 3.2 will be added to the HVAC Design Report so that the designer can explicitly verify that the proper indoor design temperatures were used in the load calculations. Item 3.2 will read as follows: “Indoor design temperatures used in loads are 70°F for heating and 75°F for cooling.” To clarify that room-by-room loads, rather than block loads, are required to be calculated, and to clarify which design methodologies may be used, Item 2.1 will be revised and moved to Item 3.1 of the HVAC Design Report as follows: “Room-by-room loads calculated using: ☐ Unabridged ACCA Manual J v8 ☐ 2013 ASHRAE Fundamentals ☐ Other per AHJ”. A new Footnote will be added to clarify the intent of the second and third option, as follows: “Select ‘2013 ASHRAE Fundamentals’ if using Chapter 17 of the 2013 ASHRAE Handbook of Fundamentals. Select ‘Other per AHJ’ if the Authority Having Jurisdiction where the home will be certified mandates the use of a load calculation methodology other than Unabridged ACCA Manual J v8 or 2013 ASHRAE Fundamentals.” Item 2.2 will be moved to Item 5.1 of the HVAC Design Report, because it relates to duct design, and will be revised as follows to clarify that the ACCA Manual D methodology must be used: “Duct system designed for the equipment selected in Section 4, per ACCA Manual D” Item 2.3 will be moved to Item 4.1 of the HVAC Design Report, because it relates to equipment selection, and will be revised as follows to clarify the ACCA Manual S methodology must be used: “Equipment selected per ACCA Manual S”. Item 2.4 will be moved to Item 3.3 of the HVAC Design Report and revised. For a more thorough discussion of the changes to this Item, see Policy Record Entry 00480. The revised Item will read as follows:

				"Outdoor design temperatures used in loads: (See Footnote 12 and energystar.gov/hvacdesigntemps) County & State selected: _ Cooling season: _°F Heating season: _°F" Items 2.5 and 2.12 through 2.14 will be moved to Items 3.10 through 3.12 on the HVAC Design Report. These Items relate to cooling loads and orientation and, with the Revision, will allow designers to document cooling loads for multiple orientations. Items 2.6 through 2.11 will be moved to Items 3.4 to 3.9 of the HVAC Design Report with only minor refinements. Item 2.15 will be moved to Item 3.14 with only minor refinements. Item 2.16 will be moved to Item 5.2 of the HVAC Design Report. To clarify that the intent of this Item is to list the design airflow of the HVAC fan in heating mode and cooling mode (so as to facilitate a proper duct design and commissioning), the Item will be revised. A new Item, Item 5.3, will also be added for the designer to indicate the fan speed setting associated with these design airflows. These two Items will read as follows: 5.2: "Design HVAC fan airflow: Cooling mode _ CFM Heating mode _ CFM" 5.3: "Design HVAC fan speed setting (e.g., low, medium, high): Cooling mode_ Heating mode_" The Footnote accompanying Item 5.2 will be refined as follows: "Design HVAC fan airflow is the design airflow for the blower in CFM, as determined using the manufacturer's expanded performance data." And a Footnote will be added for Item 5.3 as follows: "Design HVAC fan speed setting is the fan speed setting on the control board (e.g., low, medium, high) that corresponds with the Design HVAC fan airflow." Item 2.17 will be moved to Item 5.4 of the HVAC Design Report. To clarify that the intent of this Item is to list the design value for the Total External Static Pressure, the Item will be revised as follows: "Design total external static pressure (corresponding to the mode with the higher airflow in Item 5.2)" The Footnote accompanying Item 5.4 will be refined as follows: "Design total external static pressure is the pressure corresponding to the Design HVAC fan airflow, inclusive of external components (e.g., evaporator coil, whole-house humidifier, or ≥ MERV 6 filter)." To eliminate the need for separate design documentation for the room-by-room design airflows (which is currently documented on the test and balance report), a new Item will be added to the HVAC Design Report, accompanied by a table, as follows:

				Item 5.5: “Room-by-room design airflows documented below (which must sum to the mode with the higher airflow in Item 5.2)” For designers that choose to document these airflows on supplemental documentation, rather than in Item 5.5, a Footnote will be added with this allowance, as follows: “Designers may provide supplemental documentation with room-by-room and total design airflows in lieu of completing Item 5.5.” A second Footnote will be added to recommend, but not require, that orientation-specific room-by-room airflows be specified, as follows: “Orientation-specific room-by-room design airflows are recommended, but not required, to distribute airflow proportional to load, thereby improving comfort and efficiency.” Finally, Item 2.18 and its associated Footnote will be removed. This Item requires a full load calculation report to be attached. Because the most important design parameters will be added directly to the HVAC Design Report, this requirement for supplemental documentation will be removed to reduce the paperwork required to certify a home.
00479	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Clarification**	**Item 2.1 & Footnote 8 – Unabridged vs Abridged Manual J Methodologies**
				Issue: Partners have asked if the Abridged Edition of Manual J ($MJ8_{AE}$) is permitted to be used to calculate the heating and cooling loads of an ENERGY STAR certified home, or if the unabridged version must be used.
				Resolution: ACCA explicitly states that the Manual J Abridged Edition is not suitable for new homes. Furthermore, there are explicit limitations and assumptions within $MJ8_{AE}$ that make it unsuitable for calculating the heating and cooling loads of ENERGY STAR certified homes. Therefore, the Manual J Abridged Edition is not permitted to be used. Instead, when Manual J is used, only the unabridged version is permitted to be used. To reflect this clarification, references to Manual J in Item 2.1 and Footnote 8 will be revised by adding the word, “Unabridged”.
00327	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Clarification**	**Items 2.1 to 2.3 & Footnote 8 - Allowable HVAC Design Methodologies & Software**
				Issue: Partners have noted that Items 2.1, 2.2, 2.3 and Footnote 8 allow “substantively equivalent procedures” to be used to calculate loads, select equipment, and design ductwork and have asked what procedures would be considered equivalent. On a related topic, partners have asked whether software is required to be used to complete these tasks and, if so, must the software meet any specific requirements. Partners have also asked, specifically, may Trane’s TRACE software or Carrier’s HAP software be used.

				Resolution: To clarify the intent of "or a substantively equivalent procedure" in Footnote 8, this phrase will be replaced with "or other methodology approved by the Authority Having Jurisdiction". To reflect these changes the first paragraph of Footnote 8 will be revised to read: "Heating and cooling loads shall be calculated, equipment shall be selected, and duct systems shall be sized according to the latest editions of ACCA Manuals J, S, & D, respectively, 2009 ASHRAE Handbook of Fundamentals, or other methodology approved by the Authority Having Jurisdiction. The HVAC system design shall be completed for the specific configuration (e.g., plan, elevation, option, and orientation) of the home to be built except as permitted herein." Note that this will not alter the documentation requirements for the program, but rather simply clarify the intent that alternate design methodologies be approved by the Authority Having Jurisdiction. Regarding software, EPA recommends, but does not require, that loads be calculated, equipment be selected, and ducts be designed using software. In practice, many designers will choose to use software to save time and money and to improve the accuracy and the consistency of their results. When designers choose to use software, EPA recommends that the designer either verify with the vendor that the software is intended for use in residential design or, if calculating loads in accordance with ACCA Manual J or designing ducts in accordance with ACCA Manual D, that the designer select a program approved by ACCA, as listed at: https://www.acca.org/industry/system-design/software. In regards to the use of Trane's TRACE software and Carrier's HAP software, per the resolution above, at this time EPA does not require that specific programs be used nor prohibit specific programs from being used. Therefore, these programs are permitted to be used though, after consultation with these software vendors, EPA does not recommend their use for ENERGY STAR certified homes. Finally, EPA does permit an HVAC Quality Installation Training & Oversight Organization (H-QUITO), if they desire, to set restrictions on whether software must be used and, if so, what programs are acceptable. This flexibility is intended to allow the H-QUITO to conduct quality assurance more reliably and efficiently.
00136	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Item 2.2 – Ductilators**
				Issue: Partners have asked whether a ductilator and hand calculations are permitted to be used to design duct systems according to ACCA Manual D or if software must be used.
				Resolution: Ductilators and hand calculations are permitted to be used to comply with ACCA Manual D. Duct design software tools are also permitted to be used, but are not required.
00328	**06/01/2013**		**Comment**	**Items 2.2 and 2.17 – Applicability of ductwork design**

		HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)		**Issue:** Partners have asked when the "N/A" checkboxes next to Items 2.2 and 2.17 are permitted to be checked.
				Resolution: The "N/A" boxes included next to Items 2.2 and 2.17 are permitted to be checked for a home that does not have a duct distribution system. For a home with one or more HVAC systems that do have ductwork, the "N/A" boxes are not permitted to be checked and the duct design must be completed in accordance with ACCA Manual D or a substantively equivalent procedure.
00218	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev.05)**	**Clarification**	**Item 2.18 – Clarification of intent for full load calculation report**
				Issue: Partners have asked for clarification on what must be included in the documentation for the full load calculation to meet the intent of Item 2.18.
				Resolution: To clarify the documentation that is required to meet the intent of Item 2.18, a new Footnote will be added that reads as follows: "The load calculation for the home shall be provided, documenting all design elements and all resulting loads, including but not limited to the values listed in Items 2.1 through 2.17."
00480	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Item 2.4 & Footnote 9: Refined design temperature limits and exception process**
				Issue: Partners have indicated that it is difficult to both meet and assess compliance with the outdoor design temperature limits of the program. This occurs for several reasons – multiple data sources are available, assessing the 'geographically closest location' may be an ambiguous process, and partners that build in a metropolitan area may find that adjacent subdivisions are closest to different weather stations (adding to the complexity of the certification process). In addition, the current allowance for the designer to provide the Rater with a justification when using some place other than the closest geographic location has created additional uncertainty about how to assess compliance.
				Resolution: To clarify the intent and ensure more consistent enforcement of this Item, county-level outdoor design temperature limits will be defined and posted as a resource to www.energystar.gov/hvacdesigntemps. As a result, Item 2.4, which will be moved to Item 3.3 on the HVAC Design Report, will be refined to reflect this new resource, as follows: "Outdoor design temperatures used in loads: (See Footnote 12 and energystar.gov/hvacdesigntemps) County & State Selected: _ Cooling Season: _°F Heating Season: _°F" As a result of this change in policy, Footnote 9 which is associated with this Item will be removed and replaced with Footnote 12 of the HVAC Design Report. This new Footnote will read as follows:

				"Visit energystar.gov/hvacdesigntemps for the maximum cooling season design temperature and minimum heating season design temperature permitted for ENERGY STAR certified homes. For "County & State selected", select the County and State where the home is to be certified. The same design report is permitted to be used in other counties, as long as the design temperature limits in those other counties meet or exceed the cooling and heating season temperature limits for the county selected. For example, if Fauquier County, VA, is used for the load calculations, with a 1% cooling temperature limit of 93 F, then the same report could be used in Fairfax County (which has a higher limit of 94 F) but not in Arlington County (which has a lower limit of 92 F)."
00481	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Footnote 8 - Revised group design policy**
				Issue: This Footnote defines a process by which a single HVAC system design can be created for a plan that is intended to be built with potentially different configurations (i.e., different elevations, options, and/or orientations). Various partners have indicated that the policy surrounding this group design allowance needs to be clarified to better convey its intent and make enforcement more consistent.
				Resolution: To improve and clarify the allowance regarding group designs, the following changes will be made: A new Item, Item 1.6, will be added to the HVAC Design Report for the designer to record the name of the house plan that the system has been designed for and to indicate whether the design is site-specific or part of a group: "House plan: ___ Check box to indicate whether the system design is site-specific or part of a group: ☐ Site-specific design. Option(s) & elevation(s) modeled:____ ☐ Group design. Group #: _____ out of ____ total groups for this house plan. Configuration modeled: ___" Footnote 8 will also be revised and relocated to a new Footnote referenced by Item 1.6 in the HVAC Design Report, as follows: "The report shall represent a single system design for a house plan. Check the box for 'site-specific design' if the design was created for the specific plan configuration (i.e., elevation, option, orientation, and county) of the home to be certified. Check the box for 'group design' if the design was created for a plan that is intended to be built with potentially different configurations (i.e., different elevations, options, and/or orientations). Regardless of the box checked, the system design as documented on this HVAC Design Report must fall within the following tolerances for the home to be certified: • Item 3.3: The outdoor design temperature used in loads are within the limits defined at energystar.gov/hvacdesigntemps. • Item 3.4: The number of occupants used in loads is within ± 2 of the home to be certified.

				• Item 3.5: The conditioned floor area used in loads is between zero and 300 sq. ft. larger than the home to be certified. • Item 3.6: The window area used in loads is between zero and 60 sq. ft. larger than the home to be certified. • Item 3.7: The predominant window SHGC is within 0.1 of the predominant value in the home to be certified. • Items 3.10 - 3.12: The sensible, latent, & total heat gain are documented for the orientation of the home to be certified. • Item 3.13: The variation in total heat gain across orientations is ≤ 6 kBtuh. • Item 4.16: The cooling sizing % is within the cooling sizing limit selected. Provide the HVAC Design Report to the party you are providing these design services to (i.e., a builder or credentialed HVAC contractor) and to the Home Energy Rater. The report is only required to be provided once per system design, even if multiple homes are built using this design (e.g., in a production environment where the same plan is built multiple times, only one report is required). As long as a report has been provided that falls within tolerance of the home to be certified, no additional work is required. However, if no report falls within these tolerances or if any aspect of the system design changes, then an additional report will need to be generated prior to certification. Visit energystar.gov/newhomeshvacdesign for a tool to assist with group designs and for more information." To facilitate the reporting of loads for multiple orientations for a group design, a new table will be added to the HVAC Design Report (Item 3.10 through Item 3.14). This table allows designers to list sensible heat gain and total heat gain by orientation (and the latent heat gain and total heat loss, which do not vary by orientation). With this addition, Item 2.5 will no longer be needed because orientation will now captured by the horizontal axis of the new table. A new Item, Item 3.13 of the HVAC Design Report, has been added to document one of the tolerances that's required to be met for a group design. This Item will be used to document the difference between maximum and minimum total heat gain across all orientations and to verify that this difference is less than or equal to 6 kBtuh. Additionally, two new Footnotes will be added to further explain this tolerance. Footnote 16 will read as follows: "Orientation represents the direction that the front door of the house is facing. The designer is only required to document the loads for the orientation(s) that the house might be built in. For example, if a house plan will only be built one time in a specific orientation (e.g., a site-specific design), then the designer only needs to document the loads for this one orientation." And Footnote 17 of the HVAC Design Report will read as follows: "Determine the orientation with the largest and smallest Total Heat Gain. Verify that the difference in Total Heat Gain between the orientation with the largest and smallest value is ≤ 6

				kBtuh. If not, then assign the orientations into one or more groups until the difference is ≤ 6 kBtuh and then complete a separate HVAC Design Report for each group.”
00482	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Sections 3, 4, & 5 – Transition to Section 4 of the HVAC Design Report**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Contractor Checklist, partners have suggested that the design-related items be transitioned to one program document, that the commissioning-related items be transitioned to a second program document, and that the amount of supplemental documentation be reduced.
				Resolution: As part of an overall transition from the HVAC System QI Contractor Checklist to the HVAC Design Report and HVAC Commissioning Checklist, Sections 3, 4, and 5 will be moved to Section 4 of the HVAC Design Report. These Sections all relate to the heating and cooling equipment selected, and grouping them into a single new Section will improve the clarity of the program without changing its overall intent. A new Item, Item 4.2, will be added for the designer to indicate whether a cooling-only air conditioner or cooling & heating heat pump has been selected. This indication will determine which subsequent fields in Section 4 must be completed. Items 3.1 through 3.3 will be moved to Items 4.3 through 4.5 on the HVAC Design Report. Items 3.4 and 4.1, which correspond to the AHRI listed efficiency of an air conditioner and a heat pump, will be merged into a single new Item, Item 4.6 on the HVAC Design Report, as follows: “AHRI listed efficiency: ___ / ___ EER / SEER Air-source heat pump: ____ HSPF Ground-source heat pump: ____ COP” Because Items 3.5 and 3.6 do not directly related to program requirements, they will be removed to reduce the effort required to certify a home. Item 3.13 which requires the collection of an AHRI Certificate, will be removed. Item 3.7 will be moved to Item 4.7 of the HVAC Design Report and clarified as follows: “Evaporator fan type: ☐ PSC ☐ ECM / ICM ☐ Other: _____” Items 3.8 through 3.10 will be moved to Items 4.9 through 4.11 of the HVAC Design Report and clarified as follows: 4.9: “Latent capacity at design conditions, from OEM expanded performance data: ___ kBtuh” 4.10 “Sensible capacity at design conditions, from OEM expanded performance data: __ kBtuh” 4.11 “Total capacity at design conditions, from OEM expanded performance data: ___ kBtuh”

				Footnote 18, which currently provides guidance on how to obtain the system capacity at design conditions, will be deleted because this information will be incorporated directly into Items 4.9-4.11. To clarify the original intent of Item 3.11, which is to recommend but not require that equipment be specified with sufficient latent capacity to maintain indoor relative humidity at ≤ 60 %, this Item will be deleted and replaced with a new Footnote in the HVAC Design Report, as follows: "In 'Warm-Humid' climates as defined by 2009 IECC Figure 301.1 (i.e., CZ 1 and portions of CZ 2 and 3A below the white line), it is recommended, but not required, that equipment be specified with sufficient latent capacity to maintain indoor relative humidity at ≤ 60 %." Item 3.12, which relates to equipment over-sizing limits, will be moved and expanded in the HVAC Design Report. For a more thorough discussion of the changes to this Item, see Policy Record Entry 00483. Item 3.13, which required that an AHRI Certificate be attached, will be deleted to reduce the effort required to certify a home. Because the AHRI reference number will still be reported in Item 4.5 of the HVAC Design Report, an AHRI Certificate could be produced at a later time as part of an enhanced quality assurance process. Items 4.2 and 4.3 will be combined and relocated to Item 4.12 of the HVAC Design Report. Additionally, the requirement to report part-load efficiency and the associated Footnote 20 will be removed because this information is often not easily attainable and does not directly relate to certification of the home. Finally, Items 5.1 through 5.4, which relate to furnace equipment, will be moved and expanded to Items 4.17 through 4.22 on the HVAC Design Report. For a more thorough discussion of the changes to this Item, see Policy Record Entry 00483.
00329	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Comment**	**Section 3 – Applicability to heat pump systems**
				Issue: Partners have asked if homes with heat pumps installed to serve the cooling load are required to complete Section 3.
				Resolution: The intent of Section 3 is to collect data about the cooling equipment that has been installed in the home. Therefore, if a heat pump is installed that serves a cooling load, Section 3 must be completed with data for this heat pump.
00483	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Item 3.12 & 5.4 – Cooling & Heating Equipment Over-Sizing Limits**
				Issue: Partners have noted that a new version of ACCA Manual S has been released, with revised limits on equipment over-sizing. In addition, multiple partners have expressed challenges with assessing the intent and enforcement of the phrase "next nominal size". Specifically, it is unclear whether the "next nominal size" allowance should be applied relative to the load or relative to the over-sizing limit of Manual S. In addition, Raters have noted that it

				is difficult to assess whether the “next nominal size” has been selected unless they consult OEM product data.
				Resolution: To clarify the intent and enforcement of the cooling and heating equipment over-sizing limits for the program, the limits will be aligned with the new version of ACCA Manual S. In addition, the phrase “next nominal size” will be replaced with a quantitative allowance. To reflect these changes, Items 3.12 and 5.4 will be replaced with several Items on the HVAC Design Report. To more clearly document the percent over-sizing of the cooling and heating equipment selected relative to the total heat gain and total heat loss, Items 4.13 and 4.20 will be added, as follows: Item 4.13: “Cooling sizing % = Total capacity (Item 4.11) divided by maximum total heat gain (Item 3.12): _____ %” Item 4.20: “Heating sizing % = Total capacity (Item 4.19) divided by total heat loss (Item 3.14): _____ %” Because the most recent release of ACCA Manual S has different cooling over-sizing limits that are dependent upon the equipment type, compressor type, and climate conditions, three new Items will be added to the HVAC Design Report to capture these parameters, as follows: Item 4.2: ““Equipment type: ☐ Cooling-only air conditioner or ☐ Cooling & heating heat pump” Item 4.8: “Compressor type: ☐ Single-speed ☐Two-speed ☐ Variable-speed” Item 4:14: “Complete this Item if Condition B Climate will be used to select sizing limit in Item 4.15. Otherwise, check “N/A”: ☐ N/A” Item 4.14.1: “Load sensible heat ratio = Max. sensible heat gain (Item 3.10) / Max. total heat gain (Item 3.12) = _____ %” Item 4.14.2: “HDD / CDD ratio (Visit energystar.gov/hvacdesigntemps to determine this value for the design location) = _____” A new Footnote will be added to Item 4.14 to further explain Condition B Climates, as follows: “Per ACCA Manual S, Second Edition, if the load sensible heat ratio is ≥ 95% and the HDD/CDD ratio is ≥ 2.0, then the Climate is Condition B, otherwise it is Condition A.” To clearly convey the new over-sizing limits in ACCA Manual S, tables will be included in Item 4.15 and 4.21 for cooling and heating, respectively. Furthermore, in lieu of the “next nominal size” allowance, a quantitative allowance will be provided for cooling and heating equipment, and incorporated into these tables. Finally, for the designer to clearly indicate which over-sizing limit applies for the cooling and heating system, they will be asked to check the box of the applicable limit:

<table>
<tr><td></td><td></td><td></td><td></td><td>Item 4.15: “Check box of applicable cooling sizing limit from chart below:”
<table>
<tr><td rowspan="2">Equipment Type (Per Item 4.2) & Climate Condition (Per Item 4.14)</td><td colspan="3">Compressor Type (Per Item 4.8)</td></tr>
<tr><td>Single-Speed</td><td>Two-Speed</td><td>Variable-Speed</td></tr>
<tr><td>For Cooling-Only Equipment or For Cooling Mode of Heat Pump in Condition A Climate</td><td>☐ Recommended: 90 – 115%
Allowed: 90 – 130%</td><td>☐ Recommended: 90 – 120%
Allowed: 90 – 140%</td><td>☐ Recommended: 90 – 130%
Allowed: 90 – 160%</td></tr>
<tr><td>For Cooling Mode of Heat Pump in Condition B Climate</td><td>☐ 90% - 100%, plus 15 kBtuh</td><td>☐ 90% - 100%, plus 15 kBtuh</td><td>☐ 90% - 100%, plus 15 kBtuh</td></tr>
</table>
Item 4.21: “Check box of applicable heating sizing limit from chart below:”
<table>
<tr><td>When Used for Heating Only</td><td>When Paired With Cooling</td></tr>
<tr><td>☐ 100 – 140%</td><td>☐ Recommended: 100 – 140% Allowed: 100 – 200%</td></tr>
</table>
Footnotes 19 and 21, which define the current “next nominal size” allowances, will be deleted. Two Footnotes will be added to further clarify the new allowances and to provide an alternative allowance for low-load spaces, as follows:
“Equipment shall be selected using the maximum total heat gain in Item 3.12 and the total heat loss in Item 3.14 per ACCA Manual S, Second Edition, except that cooling ranges above ACCA Manual S limits are temporarily allowed, per Item 4.15.”
“As an alternative for low-load spaces, a system match-up including a single-speed compressor with a total capacity ≤ 20 kBtuh is permitted to be used in spaces with a total cooling load ≤ 15 kBtuh. A system match-up including a two-speed or variable-speed compressor with a total capacity ≤ 25 kBtuh is permitted to be used in spaces with a total cooling load ≤ 18 kBtuh.”
As a final step, two new Items will be added for the designer to indicate that the cooling and heating sizing percentage is within the cooling and heating sizing limit, as follows:
Item 4.16: “Cooling sizing % (4.13) is within cooling sizing limit (4.15)”
Item 4.22: “Heating sizing % (4.20) is within heating sizing limit (4.21)”</td></tr>
<tr><td rowspan="3">00219</td><td rowspan="3">09/10/2012</td><td rowspan="3">HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)</td><td rowspan="3">Change</td><td>Items 3.2, 3.4, and 5.2 - Equipment serial numbers</td></tr>
<tr><td>Issue: Partners have suggested that the manufacturer and model name is sufficient for documenting the HVAC equipment used in an ENERGY STAR Home and that the value of documenting the serial number of the equipment used in each home is outweighed by the effort required to do so.</td></tr>
<tr><td>Resolution: Items 3.2, 3.4, and 5.2 will be removed from this Checklist.</td></tr>
</table>

00330	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Clarification**	**Items 4.1 to 4.3, 7.10, & Footnote 1 – Applicability to mini / multi-split, geothermal, & hydronic systems**
				Issue: Policy Record entries 00652 and 00653 contain the most recent resolution of this issue. This issue (ID 00330) is only being retained to maintain a complete Policy Record. Partners have asked for additional guidance on the applicability of this Checklist to mini-split / multi-split air conditioner and heat pump systems, geothermal air conditioner and heat pump systems, and hydronic systems.
				Resolution: Policy Record entries 00652 and 00653 contain the most recent resolution of this issue. This issue (ID 00330) is only being retained to maintain a complete Policy Record. With regards to mini-split / multi-split air conditioners and heat pumps, for the purposes of the ENERGY STAR Certified Homes program, the following definition will be assumed for this system type: "Mini-split / multi-split air conditioners and heat pumps have variable refrigerant flow and distributed refrigerant technology with the capability of serving multiple indoor sections with a single outdoor section. The indoor sections are typically mounted on room walls and/or ceilings and designed to heat or cool air within the conditioned space either directly or through limited duct runs (e.g., less than 10 feet)." Because mini-split / multi-split HVAC systems generally require an atypical or undocumented process to complete the design and commissioning requirements of this Checklist, these systems will be exempted from the Checklist. While proper design and commissioning of such systems is valuable, the industry does not currently have standardized procedures for achieving this. The program will be better served by allowing the use of these innovative systems, rather than prohibiting their use until such standards are developed. With regards to geothermal air conditioner and heat pump systems, the commissioning requirements will be dependent on whether the distribution system is forced-air or hydronic. Because Manual J, Manual S, and Manual D are generally applicable to ground-source heat pump systems with forced-air distribution, Sections 2 through 4 must be completed. However, to better accommodate the performance characteristics of ground-source heat pump systems, the following edits will be made to these Sections: Item 4.1 will be modified by adding a field for the efficiency of the ground-source heat pump in units of COP: "AHRI Listed Efficiency: Air-Source _____ HSPF or Ground-Source _____ COP" Documenting the part-load performance of ground-source heat pumps will not be required in Items 4.2 & 4.3. This will be addressed by adding a new Footnote to these items, which will state: "Items 4.2 and 4.3 are not applicable to ground-source heat pumps."

				In regards to commissioning tests, Section 6 & 7 already provide an option to use an OEM test procedure in lieu of a superheat or subcooling refrigerant test. Therefore, no modifications are needed to these Sections other than to reinforce that an OEM test is permitted to be used in the case of a ground-source heat pump. Item 7.10 will be revised to read: "An OEM test procedure (e.g., as defined for a ground-source heat pump) has been used in place of sub-cooling or super-heat process and documentation has been attached that defines this procedure." Regarding ground-source heat pumps with hydronic distribution, this system type will be exempted from the Checklist. Manual S does not address this system type – it only addresses "water-to-air heat pumps" – and Manual D is not applicable. Furthermore, two of the four commissioning tests (i.e., assessing airflow across the evaporator and airflow at registers) will not be applicable to this system type. While proper design and commissioning of such systems is valuable, this is beyond the scope of the program at this time. Other systems with hydronic distribution are also exempt from the requirements of Sections 2 through 12 of this checklist. EPA encourages, but does not require, proper design and installation of such systems. Therefore, for a home that only has hydronic distribution systems, the only portion of this checklist that would need to be completed is Section 1, Whole-Building Mechanical Ventilation Design. Every home is required to have a mechanical ventilation system designed to meet ASHRAE 62.2-2010 requirements. In addition, to further improve the clarity and consistency with which the program requirements are enforced, Footnote 1 will be edited to indicate that the Checklist only applies to the system types listed in the Footnote when coupled with a forced-air distribution system. To reflect these changes, the second paragraph of Footnote 1 will be revised as follows: "This Checklist applies to ventilation systems; to split air conditioners, unitary air conditioners, air-source heat pumps, and water-source (i.e., geothermal) heat pumps up to 65,000 Btu / h with forced-air distribution systems (i.e., ducts); and to furnaces up to 225,000 Btu / h with forced-air distribution systems (i.e., ducts). All other permutations of equipment (e.g., boilers, mini-split / multi-split systems) and distribution systems are exempt. If the ventilation system is the only applicable system installed in the home, then only Section 1 shall be completed."
00049	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Clarification**	**Section 6 – Guidance on refrigerant charge test in cold weather**
				Issue: This section notes that if cold weather makes it impossible to verify proper refrigerant charge, the system must include a TXV. Partners have asked EPA to define the cold weather conditions for which a refrigerant test is not possible.
				Resolution: To promote consistent enforcement of this exemption, EPA will revise the note in this section, as follows: "Note: If outdoor ambient temperature at the condenser is ≤ 55°F or, if known, below the manufacturer-recommended minimum operating temperature for the cooling cycle, then the

				system shall include a TXV, and the contractor shall mark “N/A” on the checklist for Section 6 & 7.”
00484	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Sections 6 & 7 – Transition to Section 2 of the HVAC Commissioning Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Contractor Checklist, partners have suggested that the design-related items be transitioned to one program document, that the commissioning-related items be transitioned to a second program document, and that the amount of supplemental documentation be reduced.
				Resolution: As part of an overall transition from the HVAC System QI Contractor Checklist to the HVAC Design Report and HVAC Commissioning Checklist, Sections 6 & 7 will be moved to Section 2 of the HVAC Commissioning Checklist. These Sections relate to refrigerant charge testing, and grouping them into a single new Section will improve the clarity of the program without changing its overall intent.
00331	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Comment**	**Section 6 and Section 7 – Temperature and pressure measurements**
				Issue: Partners have noted that only particular Items in Section 6 are needed to complete Section 7, and these Items are dependent on the type of metering device used. This has prompted partners to ask if all Items in Section 6 are always required to be completed.
				Resolution: Systems using a TXV metering device are not required to complete the following Items: • 6.2 (Return-side air temperature) • 6.5 (Suction line pressure) • 6.6 (Suction line temperature) Systems using a fixed orifice metering device are not required to complete the following Items: • 6.3 (Liquid line pressure) • 6.4 (Liquid line temperature) Note that Item 6.1 (Outdoor ambient temperature) is required to be completed regardless of whether the system uses a TXV or fixed orifice metering device. For systems with a TXV metering device, this value is used to document if the outdoor ambient temperature at the condenser is ≤ 55 °F or, if known, below the manufacturer-recommended minimum operating temperature for the cooling cycle. If either of these conditions is true, then the contractor shall mark “N/A” on the Checklist for Sections 6 & 7. For systems with a fixed orifice metering device, this value is needed for Item 7.7 to determine the superheat goal.

00485	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Removal of Section 8: Electrical Measurements**
				Issue: Partners have expressed several concerns about the required HVAC commissioning tasks, including that additional training resources are needed and that additional oversight is necessary. As a result of these concerns, EPA has assessed whether the commissioning tasks should be streamlined so that available resources can be focused on developing additional training and oversight for the most critical commissioning tasks. Section 8 currently requires the HVAC contractor to measure the amperage and line voltage of the evaporator or furnace air handler fan and the condenser unit. These values must be confirmed to be within OEM-specified tolerance of the nameplate values.
				Resolution: Section 8 will be removed from the Checklist. While the measurement of electrical parameters does provide value, there are other tasks (i.e., checking the airflow across the evaporator, the refrigerant charge, and the airflow delivered to each room) that EPA believes are more valuable and that should be prioritized first. EPA will consider whether to reincorporate the measurement of electrical parameters when future versions of the program are developed.
00050	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Change**	**Section 8 – Simplified electrical measurements**
				Issue: Partners have asked EPA to clarify which components contractors need to complete electrical measurements for and what the justification is for including watts as a test parameter. Regarding components, partners specifically questioned whether the condenser fan needed to be tested, given that this equipment is typically integral to the condenser unit and not easily accessible.
				Resolution: EPA's intent was to align with the requirements of the ANSI/ACCA 5 QI-2007 protocol. This protocol requires that the contractor measure the line voltage, low voltage, and amperages for all components with rating plates to ensure that the difference between the measured and rating plate values are within the OEM's tolerance. With this in mind, EPA will simplify and clarify the requirements by listing only the two most common components (i.e., the evaporator/air handler fan and the condenser unit) and by only requiring that the amperage and line voltage values be measured and reported. Therefore, Section 8 will be revised as follows: "8. Electrical Measurements – *Taken at electrical disconnect while component is in operation* "8.1 Evaporator/air handler fan: ____ amperage _____line voltage "8.2 Condenser unit: ____ amperage _____line voltage "8.3 Electrical measurements within OEM-specified tolerance of nameplate value"
00332	**06/01/2013**		**Refinement**	**Item 8.1 – Elec. measurements required for both evaporator & furnace air handler fans**

		HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)		**Issue:** Partners have noted some may misinterpret Item 8.1 as only applying to air handler fans for cooling systems.
				Resolution: To avoid any potential misinterpretation about the fact that electrical measurements are required for air handler fans of both heating and cooling systems, Item 8.1 will be revised to read: "Evaporator or furnace air handler fan:"
00486	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Section 9 - Transition to Section 3 of the HVAC Commissioning Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Contractor Checklist, partners have suggested that the design-related items be transitioned to one program document, that the commissioning-related items be transitioned to a second program document, and that the amount of supplemental documentation be reduced.
				Resolution: As part of an overall transition from the HVAC System QI Contractor Checklist to the HVAC Design Report and HVAC Commissioning Checklist, Section 9 will be moved to Section 3 of the HVAC Commissioning Checklist. This Section relates to assessing the indoor HVAC fan airflow. The overall intent of this Section will not change. However, various Items will be clarified and added to clarify the commissioning test. Item 9.1, which represents the final outcome of the commissioning test – the airflow of the fan – will be relocated to the end of Section 3 of the HVAC Commissioning Checklist and refined, as follows: Item 3.7: "Measured HVAC fan airflow, using Item 3.5 and fan speed setting: _____ CFM" Item 9.2, which instructs the contractor to record what mode the test has been conducted in, will be refined, linked to the HVAC Design Report, and moved to Item 3.1, as follows: "The mode with the higher design HVAC fan airflow used, per Item 5.2 of HVAC Design Report: ☐ Heating ☐ Cooling" Item 9.5, along with portions of Item 9.3 and 9.4, will be relocated to Item 3.2 on the HVAC Commissioning Checklist, to reflect the next step in the commissioning task. The Item will separately capture the test hole location for the supply and return, and the most common locations for test holes will be incorporated directly into the Item in lieu of Footnote 23 to improve clarity and compliance. The new Item will read as follows: "Static pressure test holes have been created, and test hole locations are well-marked and accessible. Test hole location for return external static pressure: ☐ Plenum ☐ Cabinet ☐ Transition ☐ Other:

				Test hole location for supply external static pressure: ☐ Plenum ☐ Cabinet ☐ Transition ☐Other:“ Items 9.3 and 9.4 will be moved to Items 3.3 and 3.4 on the HVAC Commissioning Checklist and refined as follows: Item 3.3: “Measured return external static pressure (Enter value only, without negative sign): ___ IWC” Item 3.4: “Measured supply external static pressure (Enter value only, without positive sign): _____ IWC” Two new Items, Items 3.5 and 3.6, will be added to the HVAC Commissioning Checklist that explicitly state the steps between measuring return and supply external static pressure and verifying that the HVAC fan airflow is within 15% of the design HVAC fan airflow. The first new Item, Item 3.5, will require the addition of the return and supply side external static pressure values and will read as follows: “Measured total external static pressure = Value-only from Item 3.3 + Value-only from Item 3.4 = _____ IWC” The second new Item, Item 3.6, will require the difference between the measured total external static pressure and the design total static pressure to be recorded and will read as follows: “Measured (Item 3.5) - Design (Item 5.4 on HVAC Design Report) total external static pressure = _____ IWC” Finally, Item 9.6 will be moved to Item 3.8 on the HVAC Commissioning Checklist and will be refined to clarify the intent of this requirement, as follows: “Measured HVAC fan airflow (Item 3.7) is ± 15% of design HVAC fan airflow (Item 5.2 on HVAC Design Report)”
00137	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Refinement**	**Item 9.2 – Typographical error**
				Issue: EPA has identified a minor typographical error in Item 9.2.
				Resolution: The word “Cooing” in Item 9.2 will be revised to “Cooling”.
00220	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Change**	**Item 9.6 - Indication of air flow test methodology**
				Issue: Partners have noted that HVAC contractors are required to measure the return and supply duct static pressure per Item 9.3 and 9.4. As such, of the air flow test methodologies listed in Item 9.6, the use of the Fan Curve methodology is always implied and the completion of Item 9.6 is not providing additional value.

				Resolution: Because the use of the Fan Curve methodology is always implied in Item 9.6, the completion of this Item is not providing additional value and will be removed, along with the associated Footnote 22.
00487	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Section 10 –Transitioned to Section 4 of the HVAC Commissioning Checklist and Made a Recommendation**
				Issue: Partners have expressed several concerns about the required HVAC commissioning tasks, including that additional training resources are needed and that additional oversight is necessary. As a result of these concerns, EPA has assessed whether the commissioning tasks should be streamlined so that available resources can be focused on developing additional training and oversight for the most critical commissioning tasks. Section 10 currently requires the HVAC contractor to test and balance the register and grille airflows. To properly perform testing and balancing of register airflows, ducts must first be properly designed. Additionally, a strategy for balancing, either dampers or right-sized duct runs, must be selected. And finally, ducts have to be installed according to the design and the contractor must have the knowledge and skills to measure the airflows and balance the system.
				Resolution: While testing and balancing is a critical commissioning step, it will be made a recommendation, rather than a requirement, while additional resources are invested to ensure the precursors to balancing are met. As a result of this and as part of an overall transition from the HVAC System QI Contractor Checklist to the HVAC Design Report and HVAC Commissioning Checklist, Section 10 will be moved to Section 4 of the HVAC Commissioning Checklist. The new Section will be renamed “Air Balancing of Supply Registers & Return Grilles” and compliance with this section will be a recommendation rather than a requirement. Because Section 10 will be a recommendation rather than a requirement, a sentence will be added to the beginning of Footnote 24 that reads, “Air balancing of supply registers and return grilles is highly recommended to improve the performance of the HVAC system and comfort of the occupants, but is not required at this time for certification.” Footnote 24 will be moved to Footnote 4 of the HVAC Commissioning Checklist. Items 10.1 and 10.1.1 will be moved to Items 4.1 and 4.2 of the HVAC Commissioning Checklist and will be refined as follows: Item 4.1 “Balancing report attached with room-by-room design airflows from Item 5.5 on HVAC Design Report, and contractor-measured airflow using ANSI / ACCA 5 QI-2015 protocol” Item 4.2: “Room-by-room airflows verified by contractor to be within the greater of ± 20% or 25 CFM of design airflow”

				Because a Rater will no longer be required to verify Items in this Section, Item 10.1.2, which provided the option for a Rater to perform air balancing, will be removed.
00191	**06/27/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Change**	**Section 10 – Air Balancing**
				Issue: Policy Record ID 00221 contains the most recent resolution of this issue. This issue (ID 00191) is only being retained to maintain a complete Policy Record. Partners have asked that Raters be provided the option to measure the airflow out of each supply and return register in lieu of HVAC contractors and verify that the value is within the accepted tolerance relative to the design value. Currently, only HVAC contractors are permitted to measure and verify register airflows, per Item 10.1, and document these values on the balancing report, per Item 10.2. Partners have noted that RESNET has defined on-site inspection procedures for measuring the airflow out of registers in Section 804.2 of the Mortgage Industry National Home Energy Rating System Standards. Partners have also noted that providing Raters with the option to measure and verify airflow in lieu of HVAC contractors would provide additional flexibility to meet the same intent as the current program requirements.
				Resolution: Policy Record ID 00221 contains the most recent resolution of this issue. This issue (ID 00191) is only being retained to maintain a complete Policy Record. A Rater shall be permitted, as an alternative to the HVAC contractor, to measure the airflow out of each supply and return register; to document the values on the balancing report; and to verify that the measured values are within the accepted tolerance relative to the design value. For instances in which the Rater-verified airflow is not within the greater of ± 20% or 25 CFM of the design airflow, the contractor shall be required to correct the balancing of the system prior to final Rater-verification of the airflow. As partners have noted, RESNET has defined on-site inspection procedures for measuring the airflow out of registers in Section 804.2 of the Mortgage Industry National Home Energy Rating System Standards. In addition to these procedures, RESNET and Rating Providers are responsible for providing oversight of Raters that utilize these procedures. Consistent with Policy Record Issue 00190, Raters working under an accredited Sampling Provider may use the applicable (either RESNET or California Energy Commission) sampling protocol to verify any inspection checklist item that may be designated “Rater Verified”. When using the sampling protocol, Raters shall consider collectively the measurement of the airflow out of each supply and return register in a single home; the documentation of those values on the balancing report; and the verification that those measured values are within the accepted tolerance as a single measure when designing sampling controls. For example, if there are 20 registers in each home in a sample set, and the Rater wishes to use the sampling protocol, the Rater shall measure the airflow of all 20 registers in the home

				selected for the airflow inspections; document these values on the balancing report; and verify that all 20 values are within the accepted tolerance. The Rater is not permitted to test 6 registers in one home in the set and the remaining 14 registers in a second home in the set. Raters that elect to use this new option to measure, document, and verify airflows prior to the release of Revision 06 shall maintain documentation that clearly identifies whether the contractor or the Rater completed this work for each certified home. To reflect this change, Item 10.1 on this Checklist will be revised as follows: "10.1 Balancing report prepared and attached indicating the room name and design airflow for each supply and return register. In addition, final individual room airflows measured and documented through one of the following options: 10.1.1 Measured by contractor using ANSI / ACCA 5 QI-2007 protocol, documented by contractor on the balancing report, & verified by contractor to be within the greater of ± 20% or 25 CFM of design airflow, OR; 10.1.2 To be measured, documented, and verified by a Rater per Item 1.4.2 of the HVAC System QI Rater Checklist" Item 10.2 of this Checklist, which had addressed the requirements of the balancing report, will be removed because these requirements will have been integrated into the revised Item 10.1. In addition, Item 1.4 will be added to the HVAC System QI Rater Checklist and will state: "1.4 Contractor-prepared balancing report indicating the room name and design airflow for each supply and return register collected by Rater for records. In addition, final individual room airflows measured and documented on balancing report through one of the following options: 1.4.1 Measured and documented by contractor (10.1.1), OR; 1.4.2 Measured by Rater using Section 804.2 of the Mortgage Industry National HERS Standard, documented by Rater, & verified by Rater to be within the greater of ± 20% or 25 CFM of design airflow (10.1.2)" Footnote 10 will be added to Item 1.4.2 and will state: "For instances in which the Rater-verified airflow is not within the greater of ± 20% or 25 CFM of the design airflow, the contractor shall correct the balancing of the system prior to final Rater-verification of the airflow." Finally, Item 1.1 of the HVAC System QI Rater Checklist will be revised by removing the reference to the balancing report, which is now addressed in Item 1.4. Item 1.1 will state: "HVAC System Quality Installation Contractor Checklist completed in its entirety and collected for records, along with documentation on ventilation system (1.3), full load calculations (2.18), and AHRI certificate (3.15)."
00221	**09/10/2012**		**Change**	**Section 10 – Air Balancing**

		HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)		**Issue:** Partners have requested that Raters be provided the option to measure the airflow out of each supply and return register in lieu of HVAC contractors and verify that the value is within the accepted tolerance relative to the design value. Currently, only HVAC contractors are permitted to measure and verify register airflows, per Item 10.1, and document these values on the balancing report, per Item 10.2. Partners have noted that RESNET has defined on-site inspection procedures for measuring the airflow out of registers in Section 804.2 of the Mortgage Industry National Home Energy Rating System Standards. Partners have also noted that providing Raters with the option to measure and verify airflow in lieu of HVAC contractors would provide additional flexibility to meet the same intent as the current program requirements.
				Resolution: A Rater shall be permitted, as an alternative to the HVAC contractor, to measure the airflow out of each supply and return register; to document the values on the balancing report; and to verify that the measured values are within the accepted tolerance relative to the design value. As partners have noted, RESNET has defined on-site inspection procedures for measuring the airflow out of registers in Section 804.2 of the Mortgage Industry National Home Energy Rating System Standards. In addition to these procedures, RESNET and Rating Providers are responsible for providing oversight of Raters that utilize these procedures. Consistent with Policy Record Issue 00190, Raters working under an accredited Sampling Provider may use the applicable (either RESNET or California Energy Commission) sampling protocol to verify any inspection checklist item that may be designated “Rater Verified”. When using the sampling protocol, Raters shall consider collectively the measurement of the airflow out of each supply and return register in a single home; the documentation of those values on the balancing report; and the verification that those measured values are within the accepted tolerance as a single measure when designing sampling controls. For example, if there are 20 registers in each home in a sample set, and the Rater wishes to use the sampling protocol, the Rater shall measure the airflow of all 20 registers in the home selected for the airflow inspections; document these values on the balancing report; and verify that all 20 values are within the accepted tolerance. The Rater is not permitted to test 6 registers in one home in the set and the remaining 14 registers in a second home in the set. To reflect this change, Item 10.1 on this Checklist will be revised as follows: “10.1 Balancing report prepared and attached indicating the room name and design airflow for each supply and return register. In addition, final individual room airflows measured and documented through one of the following options:

				10.1.1 Measured by contractor using ANSI / ACCA 5 QI-2007 protocol, documented by contractor on the balancing report, & verified by contractor to be within the greater of ± 20% or 25 CFM of design airflow, OR; 10.1.2 To be measured, documented, and verified by a Rater per Item 1.4.2 of the HVAC System QI Rater Checklist" Item 10.2 of this Checklist, which had addressed the requirements of the balancing report, will be removed because these requirements will have been integrated into the revised Item 10.1. In addition, Item 1.4 will be added to the HVAC System QI Rater Checklist and will state: "1.4 Contractor-prepared balancing report indicating the room name and design airflow for each supply and return register collected by Rater for records. In addition, final individual room airflows measured and documented on balancing report through one of the following options: 1.4.1 Measured and documented by contractor (10.1.1), OR; 1.4.2 Measured by Rater using Section 804.2 of the Mortgage Industry National HERS Standard, documented by Rater, & verified by Rater to be within the greater of ± 20% or 25 CFM of design airflow (10.1.2)" Policy Record Issue 00191 had proposed the addition of a Footnote to Item 1.4.2 that would have explicitly limited the actual act of balancing to contractors alone, thereby not permitting Raters to perform this task. To be consistent with the program's approach to duct leakage, infiltration, and insulation installation, for which the program does not dictate who is responsible for sealing the ducts, sealing holes in the enclosure, or installing the insulation, this proposed Footnote will not be added. Finally, Item 1.1 of the HVAC System QI Rater Checklist will be revised by removing the reference to the balancing report, which is now addressed in Item 1.4. Item 1.1 will state: "HVAC System Quality Installation Contractor Checklist completed in its entirety and collected for records, along with documentation on ventilation system (1.3), full load calculations (2.18), and AHRI certificate (3.15)."
00222	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Comment**	**Item 10.1 – Options for meeting air flow balancing requirement**
				Issue: Partners have asked how balancing can be accomplished if neither a balancing damper located at the trunk nor Opposable Blade Dampers (OBD) are installed.
				Resolution: When not using a balancing damper located at the trunk or Opposable Blade Dampers, balancing can sometimes be accomplished if duct design and installation is performed according to Manual D and little or no variations are introduced to the duct system during installation. As a reminder, individual room airflows must be within ± 20% or 25 CFM of the design / application airflow. For example, if a given supply register has a design airflow of 40 CFM, any measured airflow rate for that register between 15 CFM and 65 CFM would meet the requirements of Item 10.1.

00488	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Refinement**	**Item 10.1.1 & Footnote 1 – Update to 2015 edition of ANSI / ACCA 5- QI**
				Issue: Partners have requested that references to the ANSI / ACCA 5 – QI standard be updated to the latest edition.
				Resolution: Because the 2015 edition of the ANSI / ACCA 5 – QI standard will be released in the near future, and the latest version available for public comment does not conflict with the current ENERGY STAR program requirements, the references to ANSI / ACCA 5 QI-2007 in Item 10.1 and Footnote 1 will be updated to ANSI / ACCA 5 QI-2015.
00139	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Footnote 22 – Inaccessible balancing dampers**
				Issue: Partners have asked how balancing dampers should be installed in ducts in flat attics where there is usually no access to balance the ducts once they are installed.
				Resolution: Footnote 22 clarifies where balancing dampers are permitted to be installed: "When balancing dampers are used, they shall be located at the trunk to limit noise unless the trunk will not be accessible when the balancing process is conducted. In such cases, Opposable Blade Dampers (OBD) or dampers located in the duct boot are permitted." Alternatively, electronic dampers can be installed so that the system can be balanced without direct access to the ductwork.
00051	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Change**	**Item 10.2 – Test and balance documentation**
				Issue: This item requires that the contractor provide a "balancing report indicating quantity of supply and return terminals per room". Partners have observed that contractors also need to provide the design flow rate for each supply register so that the Rater has the ability to verify that the proper free area opening has been provided for pressure balancing purposes.
				Resolution: EPA will edit this item to clarify the parameters that must be included, as follows: "Balancing report indicating, for each supply and return register: room name, design airflow, and final measured airflow".
00489	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Removal of Section 11: System Controls**
				Issue: Partners have expressed several concerns about the required HVAC commissioning tasks, including that additional training resources are needed and that additional oversight is necessary. As a result of these concerns, EPA has assessed whether the commissioning tasks should be streamlined so that available resources can be focused on developing additional training and oversight for the most critical commissioning tasks. Section 11 currently requires the HVAC contractor to ensure that operating and safety controls meet OEM requirements.

				Resolution: Section 11 will be removed from the Checklist. While the assurance that operating and safety controls meet OEM requirements does provide value, there are other tasks (i.e., checking the airflow across the evaporator, the refrigerant charge, and the airflow delivered to each room) that EPA believes are more valuable and that should be prioritized first. EPA will consider whether to reincorporate the assessment of operating and safety controls when future versions of the program are developed.
00490	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Section 12 – Relocation of Drain Pan Requirement**
				Issue: Partners have expressed several concerns about the required HVAC commissioning tasks, including that additional training resources are needed and that additional oversight is necessary. As a result of these concerns, EPA has assessed whether the commissioning tasks should be streamlined so that available resources can be focused on developing additional training and oversight for the most critical commissioning tasks. Section 12 currently requires the HVAC contractor to visually verify that a corrosion-resistant drain pan, properly sloped to a drainage system, has been included with each HVAC component that produces condensate.
				Resolution: The presence of a drain pan is an important component for improving the durability of a home, by managing the condensate produced by HVAC equipment. However, the visual inspection for this component can be completed by the builder just as easily as by the HVAC contractor. Furthermore, its presence is at least as critical to completing the water management system as it is to completing the HVAC system. To help streamline the commissioning tasks required of the HVAC contractor, this Item and its associated Footnote will be relocated to a new Item in the Water Management System Builder Checklist.
00052	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 12.1 – Drain pan for each HVAC component that produces condensate**
				Issue: Partners have asked that EPA clarify that a drain pan is required for each piece of HVAC equipment that produces condensate (as opposed to having the contractor affirm just one per home).
				Resolution: EPA will revise this item as follows to clarify that each piece of HVAC equipment that produces condensate shall have a drain pan: “Corrosion-resistant drain pan, properly sloped to drainage system, included with each HVAC component that produces condensate”.
00333	**06/01/2013**	**HVAC System Quality Installation Contractor**	**Comment**	**Item 12.1 – Use of internal versus external drain pans**
				Issue: Partners have asked if an additional external drain pan is required when an internal drain pan is used to meet the intent of Item 12.1.

		Checklist (Version 3, Rev. 06)		**Resolution:** Either an internal or external drain pan that meets the requirements of Item 12.1 is permitted to be used. No additional external drain pan is required by the program when an internal drain pan is used. However, note that local building codes may dictate whether an internal or external drain pan is permitted to be used. If this is the case, then the local code requirements should be followed regardless of whether the home is certified.
00223	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev.05)**	**Change**	**Signature Block - Addition of field for HVAC company name**
				Issue: Partners have noted that HVAC Quality Installation Training and Oversight Organizations provide credentials at the HVAC company level rather than at the HVAC contractor level. Yet, the signature section at the bottom of this Checklist only includes a field for the HVAC contractor name and not a field for the HVAC company name. Partners have suggested that the addition of a field for the HVAC company name on this Checklist would be helpful, rather than its current location on the cover page of the Inspection Checklists.
				Resolution: The signature section at the bottom of the Checklist will be revised by adding a field for the HVAC Company Name and removing this field from the cover page of the Inspection Checklists.
00334	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Change**	**Signature Block – Addition of line for credentialing organization**
				Issue: Partners have noted that for record keeping and quality assurance purposes, it would be helpful to add a line to the signature block for the contractor to indicate through which credentialing organization they received their credentials.
				Resolution: A line will be added to the signature block that reads as follows: "Credentialing Organization: ACCA / AE / Other"
00491	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**Clarification**	**Footnote 1 – HVAC Capacity limits for checklist applicability**
				Issue: Partners have asked whether the system capacity limits listed in Footnote 1 refer to the heating capacity or the cooling capacity for each equipment type.
				Resolution: The limit of 65,000 Btu / h for heat pumps that only provide heating refers to the heating capacity, the limit of 65,000 Btu / h for air conditioners refers to the cooling capacity, and the limit of 225,000 Btu / h for furnaces refers to the heating capacity. For a heat pump that providers both cooling and heating, the limit of 65,000 applies to both heating and cooling capacity.
00492	**07/01/2015**	**HVAC System Quality Installation Contractor**	**Clarification**	**Footnote 1 – Checklist design to meet ASHRAE 62.2**
				Issue: Partners have asked whether the general intent of the program is to require certified homes to meet the requirements of ASHRAE 62.2, or to meet some subset of this standard, or to meet an alternative standard to satisfy its requirements for indoor air quality.

		Checklist (Version 3, Rev. 07)		**Resolution:** While several components of ASHRAE 62.2 may be recommended, rather than required, or not explicitly require Rater verification, the intent of the program is to require certified homes to meet the requirements of ASHRAE 62.2, as opposed to some subset of this standard or an alternative standard. To further clarify this intent, the beginning of Footnote 1 will be revised as follows: "This Checklist is designed to meet the requirements of ASHRAE 62.2..,"
00335	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Change**	**Footnote 1 – Alignment with Indoor airPLUS language**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. In addition, it now clearly indicates what is required above and beyond ENERGY STAR certification to earn the Indoor airPLUS label. Therefore, the reference to the use of this Checklist as a means to demonstrate compliance with Indoor airPLUS program requirements is no longer appropriate.
				Resolution: Because EPA's Indoor airPLUS program requires ENERGY STAR Certification and now clearly indicates what is required above and beyond these requirements to earn the Indoor airPLUS label, the following sentence will be removed from Footnote 1: "This Checklist with supporting documents may also be used to demonstrate compliance with Indoor airPLUS specifications 4.1, 4.2, 4.5, 4.6, and 7.1."
00224	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Clarification**	**Footnotes 5 and 6 – Parties eligible to complete Sections 6 through 12**
				Issue: Partners have noted that Footnote 5 indicates that only credentialed contractors are permitted to complete Items in Sections 6-10. This Footnote does not identify who is permitted to complete Section 11 & 12, even though the Checklist itself only has checkboxes for the contractor to complete these two Sections. Additionally, partners have noted that Footnote 6 indicates that the 'Cont. Verified' column is permitted to be completed by the credentialed HVAC contractor, or a firm or HERS Rater hired by the contractor. This guidance inadvertently conflicts with the guidance in Footnote 5 regarding Sections 6 through 10.
				Resolution: To reiterate, until credentials are available for heating, cooling, and ventilation system designers, either the builder (or a firm or HERS Rater hired by the builder) or the credentialed HVAC contractor (or a firm or HERS Rater hired by the credentialed contractor) shall be permitted to design such systems and to complete Sections 1 through 5 of this Checklist. In contrast, only credentialed contractors are permitted to complete Sections 6 through 12 of this Checklist. To make this intent more clear and resolve the inadvertent conflict in Footnote 5 & 6, both Footnotes will be revised. Because Footnote 5 will now provide clearer guidance on when the

				Builder is required to sign the Checklist, Footnote 25 will be redundant and will therefore be deleted. In addition, the sentence on the cover page of the Inspection Checklist that relates to the signature of the HVAC contractor ("The signature of the HVAC contractor is required if any of the HVAC equipment specified on the HVAC System Quality Installation Contractor Checklist is installed in the home.") will also be deleted. Footnote 5 will be revised by clarifying when the builder must sign this Checklist and by noting that builders are not permitted to complete Sections 6-12. It will read as follows: "For Sections 1 through 5, the 'Builder Verified' column shall be used to indicate items verified by the builder (or a firm or HERS Rater hired by the builder). If any Items have been marked 'Builder Verified', then the builder is responsible for these Items and must sign this Checklist. Note that builders are not permitted to verify any Items in Sections 6-12." Footnote 6 will be revised by noting that the 'Cont. Verified' column shall be used to indicate Items in Sections 1 through 5 that are verified by the credentialed contractor (or a firm or HERS Rater hired by the contractor), while Sections 6 through 12 must be verified by the contractor. It will read as follows: "For Sections 1 through 5, the 'Cont. Verified' column shall be used to indicate Items verified by the credentialed contractor (or a firm or HERS Rater hired by the contractor). In contrast, for Sections 6 through 12, the 'Cont. Verified' column shall *only* be used to indicate Items verified by the credentialed contractor (i.e., neither a builder, nor a firm, nor a HERS Rater are permitted to verify Sections 6 - 12). The credentialed contractor is responsible for these Items and shall sign this Checklist."
00336	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Refinement**	**Footnote 8 – Expiring exemption for 'worst-case' load calcs. & room-level airflow design**
				Issue: Partners have noted that Footnote 8 contains an exemption allowing loads and room-level airflow to be calculated for multiple home configurations using the configuration with the largest load, which only applied to homes with a final inspection through 12/31/2012.
				Resolution: Because the exemption allowing loads and room-level airflow to be calculated for multiple home configurations using the configuration with the largest load is not applicable to any home with a final inspection on or after 01/01/2013, this exemption will be removed and Footnote 8 will be revised to read as follows: "Heating and cooling loads shall be calculated, equipment shall be selected, and duct systems shall be sized according to the latest editions of ACCA Manuals J, S, & D, respectively, 2009 ASHRAE Handbook of Fundamentals, or other methodology approved by the Authority Having Jurisdiction. The HVAC system design shall be completed for the specific configuration (e.g., plan, elevation, option, and orientation) of the home to be built except as permitted herein. For each house plan with multiple configurations (e.g., orientations, elevations, options), the loads shall be calculated for each potential configuration. If the loads

				across all configurations vary by ≤ 25%, then the largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each configuration into a set with ≤ 25% variation and equipment selection shall be completed for each set of loads. For each house plan with multiple configurations, the room-level design airflows shall be calculated for each potential configuration. If the design airflows for each room vary across all configurations by ≤ 25% or 25 CFM, then the average room-level design airflow shall be permitted to be used when designing the duct system. Otherwise, the contractor shall group the room-level design airflow for each configuration into a set with ≤ 25% or 25 CFM variation and the duct design shall be completed for the average airflow of that set.”
00337	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Change**	**Footnote 17 - Guidelines for ventilation systems that use HVAC air handler**
				Issue: Footnote 17 specifies fan requirements for whole-house ventilation systems that utilize the HVAC air handler. It provides two compliance options, one of which requires in part that the air handler fan run at a reduced speed during ventilation. Partners have suggested that this requirement may not be desirable (e.g., if the ventilation air will be mixed with return air) or easily achievable with the fan controls that are commonly available.
				Resolution: Because it may not be desirable or easily achievable to run the HVAC air handler at a reduced speed during ventilation, this particular requirement will be removed. Note that the fan type shall still be ECM/ICM and variable-speed, or the system must include a controller (e.g., smart cycler) that reduces the ventilation run time by accounting for hours when the HVAC system is heating or cooling the home. As a result, Footnote 17 will be revised to read: “If the whole-house ventilation system utilizes the HVAC air handler, then the fan speed type shall be ECM / ICM and variable speed, or include a controller (e.g., smart cycler) that reduces the ventilation run time by accounting for hours when HVAC system is heating or cooling the home.”
00493	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Transition to Rater Design Review Checklist and Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: 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 will migrate to two new program documents - the Rater Design Review Checklist and the Rater Field Checklist. The Rater Design Review Checklist will contain the Items from the HVAC System QI Rater Checklist that can be completed at the design stage, prior to the start of construction, and the Rater Field Checklist will contain the Items that must be completed in the field. Detailed modifications to Items, Sections, and Footnotes are described in the entries below along with a description of their new location on the Rater Design Review Checklist and the Rater Field Checklist.
00494	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Integration of cover page from Inspection Checklists**
				Issue: Partners have provided consistent feedback that the amount of paperwork required to certify a home should be minimized wherever possible and the workflow should be aligned with a HERS rating.
				Resolution: As part of a larger effort to reduce the amount of paperwork required to certify a home, the cover page of the Inspection Checklists will be deleted and much of the content will be moved to the National 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. See Policy Record Entry 00445 for details. In addition, the Item on the cover page requiring the Rater to verify that the builder is an ENERGY STAR partner will be moved to Item 1.1 of the Rater Design Review Checklist. This new Item will read as follows: “Rater has verified that builder is an ENERGY STAR partner using energystar.gov/partnerlocator”
00495	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Single person or company serving as Rater and HVAC contractor**
				Issue: Partners have asked whether a single person or company is permitted to complete both the HVAC System QI Contractor Checklist and the HVAC System QI Rater Checklist.
				Resolution: Currently, there is no policy that prohibits a single person or company from completing both HVAC System QI Contractor Checklist and the HVAC System QI Rater Checklist. Therefore, a single person or company could completed both, so long as the company has met RESNET's requirements for Raters and an HVAC Oversight Organization's (HQUITO's) requirements for contractors.
00496	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Section 1 – Transition to Section 1 & 4 of the Rater Design Review Checklist and Section 5 of the Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Rater Checklist, partners have

				suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: As part of an overall transition from the HVAC System QI Rater Checklist to the Rater Design Review Checklist and Rater Field Checklist, Items 1.1 and 1.2 will be revised and moved to Section 4 of the Rater Design Review Checklist; Item 1.5 will be refined and moved to Item 1.2 of the Rater Design Review Checklist; Item 1.3 will be moved to 5.2 of the Rater Field Checklist; and Item 1.4 will be deleted. Detailed explanations of the revisions and refinements follow. Item 1.1 will be moved to Item 4.1 of the Rater Design Review Checklist and revised in several ways. First, it will reference the collection of the HVAC Design Report rather than the HVAC System QI Contractor Checklist. The collection of commissioning data, which will be documented on the separate HVAC Commissioning Checklist, will be permitted but not required. Second, to clarify the intent of this new Item, it will require the Rater to verify that no Items have been left blank on the HVAC Design Report, rather than verifying that it has been "completed in its entirety". Finally, as part of the effort to minimize the paperwork required to certify a home, several components of the design have been integrated directly into the HVAC Design Report, such that the requirement to collect documentation on the ventilation system, full load calculations, and an AHRI Certificate can be removed. As a result of these changes, Item 4.1 on the Rater Design Review Checklist will read as follows: "HVAC Design Report collected for records, with no Items left blank." A new Item, Item 5.3 of the Rater Field Checklist, will be added that will permit, but not require, the Rater to collect the HVAC Commissioning Checklist. The primary rationale for this change is to minimize the paperwork collection and streamline the workflow required for certification. EPA will consider whether to reincorporate additional verification of commissioning when future versions of the program are developed and as alternatives become available that would require less paperwork and improve workflow. Item 5.3 will read as follows: "Permitted, but not required: HVAC Commissioning Checklist collected, with no items left blank." Footnotes 2 and 3 will be combined and moved to Footnote 7 of the Rater Design Review Checklist. This new Footnote will be revised by clarifying that only one HVAC Design Report must be collected for each system design, rather than one report for each home, and that regardless of whether the HVAC Design Report represents a 'site-specific design' or 'group design', the report must fall within the tolerances in Item 4.2 on the Rater Design Review Checklist. The new Footnote will read as follows: "The Rater shall collect one HVAC Design Report per system design per plan. Regardless of whether the 'site-specific design' or 'group design' box has been checked in Item 1.6 of the HVAC Design Report, the system design as documented on the HVAC Design Report must fall

				within the tolerances in Item 4.2 for the home to be certified. The report is only required to be collected once per system design, even if multiple homes are built using this design (e.g., in a production environment where the same plan is built multiple times, only one report is required as long as no aspect of the system design changes between homes). The Rater is only responsible for verifying that the designer has not left any items blank on the HVAC Design Report and for verifying the discrete objective parameters in Item 4.2 of this Checklist, not for verifying the accuracy of every input on the HVAC Design Report." Item 1.2 will be moved to Item 4.2 of the HVAC Design Report and revised in several ways. Item 1.2.1, which requires the Rater to verify that the design temperatures used in the load calculations fall within defined limits, will be moved to Item 4.2.1 of the HVAC Design Report and will reflect a new resource that defines those limits. See Policy Record Entry 00497 for a detailed explanation of these limits. Item 1.2.2 will be moved to Item 4.2.6 of the Rater Design Review Checklist. It will be expanded to require that the Rater verify that the sensible, latent, and total heat gains have all been documented for the orientation of the home to be certified. Furthermore, it will be refined to reflect the fact that multiple orientations will be able to be documented on the HVAC Design Report. The new Item will read as follows: "Sensible, latent, & total heat gain are documented (3.10 - 3.12) for the orientation of the home to be certified" A new Footnote will accompany this Item to define orientation and to clarify that loads are only required to be documented for orientation of the home to be certified. This new Footnote will read as follows: "Orientation represents the direction that the front door of the house is facing. The designer is only required to document the loads for the orientation(s) that the house might be built in. For example, if a house plan will only be built one time in a specific orientation (e.g., a site-specific design), then the designer only needs to document the loads for this one orientation." Item 1.2.3 will be moved to Item 4.2.2 of the Rater Design Review Checklist and a tolerance added, per Policy Record Entry 00432. Items 1.2.4 through 1.2.6 will be moved to Items 4.2.3 through 4.2.5 on the Rater Design Review Checklist, and the tolerances refined per the revised group design policy explained in Policy Record Entry 00481. In addition, Item 4.2.7 will be added to the Rater Design Review Checklist to reflect the new tolerance related to orientation in the revised group design policy. These revised Items will read as follows: Item 4.2.3: "Conditioned floor area used in loads (3.5) is between zero and 300 sq. ft. larger than the home to be certified" Item 4.2.4: "Window area used in loads (3.6) is between zero and 60 sq. ft. larger than the home to be certified"

				Item 4.2.5: “Predominant window SHGC used in loads (3.7) is within 0.1 of predominant value in the home to be certified” Item 4.2.7: ”The variation in total heat gain across orientations (3.13) is ≤ 6 kBtuh” Items 1.2.7 and 1.2.8, which require the Rater to verify the latent and sensible capacity relative to the load, will be deleted to streamline the certification process. Item 1.2.9, which requires the Rater to verify the total capacity relative to the load and represents the most important component of ACCA Manual S, will be moved to Item 4.2.8 of the Rater Design Review Checklist and refined. A more detailed explanation of these refinements can be found in Policy Record Entry 00499. Item 1.2.10 will be moved to Item 5.1 of the Rater Field Checklist. It will be refined by referencing the HVAC Design Report. It will be simplified by not requiring the Rater to compare the equipment manufacturer and model numbers to the AHRI Certificate or OEM catalog data, because Raters will no longer be required to collect this documentation. Additionally, a phrase will be added to the Item and to Footnote 8 explaining that if the installed equipment does not match the HVAC Design Report, the Rater must obtain written approval from the designer confirming that the installed equipment meets the requirements of the HVAC Design Report. Item 5.1 will read as follows: “HVAC manufacturer & model number on installed equipment matches either of the following (check box): ☐ HVAC Design Report (4.3, 4.4, & 4.17) ☐ Written approval received from designer” This revised Footnote will be Footnote 31 of the Rater Field Checklist and reads as follows: “If installed equipment does not match the HVAC Design Report, then prior to certification the Rater shall obtain written approval from the designer (e.g., email, updated HVAC Design Report) confirming that the installed equipment meets the requirements of the HVAC Design Report. In cases where the condenser unit is installed after the time of inspection by the Rater, the HVAC manufacturer and model numbers on installed equipment can be documented through the use of photographs provided by the HVAC Contractor after installation is complete.” Items 1.2.11 and 1.2.12 and their associated Footnote, Footnote 9, will be removed. While having the Rater verify the math associated with the refrigerant charge test does provide some value, there are other tasks that EPA believes are more valuable and that should be prioritized first. EPA will consider whether to reincorporate alternative means of verifying refrigerant charge when future versions of the program are developed. Item 1.3 will be moved to Item 5.2 of the Rater Field Checklist. In addition, while Raters will continue to measure static pressure, they will no longer be required to verify that the Rater-measured static pressure is within a certain range of the HVAC Contractor’s values. EPA will consider whether to reincorporate tolerances when future versions of the program are

				developed and as standards for Raters to measure static pressure are developed. As a result, Item 5.2 will read as follows: “External static pressure measured by Rater at contractor-provided test locations and documented below: Return-Side External Static Pressure: _____ IWC Supply-Side External Static Pressure: _____ IWC” Additionally, a new Footnote will be added to reiterate this new intent: “The Rater shall measure and record the external static pressure in the return-side and supply-side of the system using the contractor-provided test locations. However, at this time, the Rater need not assess whether these values are within a specific range to certify the home.” Because air balancing will be made a recommendation rather than a requirement for HVAC contractors, per Policy Record Entry 00487, Raters will no longer be required to verify this measure. As a result, Item 1.4 will be removed. Finally, Item 1.5, which requires the Rater to verify that the HVAC contractor has the credentials required to commission the HVAC system, will be moved to Item 1.2 of the Rater Design Review Checklist. This Item will be refined by better explaining when the credential is required, and by requiring the Rater to document the HVAC contractor company name. Item 1.2 will read as follows: “Rater has verified that HVAC contractor holds credential required to complete the HVAC Commissioning Checklist, unless all equipment to be installed in home to be certified is an exempted type, in which case check “N/A” ☐ N/A HVAC Contractor Company Name: _____” The associated Footnote will be moved to Footnote 2 of the Rater Design Review Checklist and clarified as follows: “HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO) if 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) or a furnace up to 225 kBtuh with a forced-air distribution system (i.e., ducts) will be installed in the home to be certified. For all other permutations of equipment (e.g., boilers, mini-split / multi-split systems) and distribution systems, a credential is not required. An explanation of this credentialing process and links to H-QUITOs, which maintain lists of credentialed contractors, can be found at energystar.gov/newhomeshvac.”
00225	**09/10/2012**		**Comment**	**Item 1.1 - Manual J, D and S documentation requirements**

		HVAC System Quality Installation Rater Checklist (Version 3, Rev. 05)		**Issue:** Partners have asked if documentation demonstrating compliance with Manual J, D and S needs to be collected for every certified home, even if multiple certified homes have the same plan and system design.
				Resolution: Per Item 1.1 HVAC System Quality Installation Rater Checklist, the HVAC System Quality Installation Contractor Checklist must be completed in its entirety and collected by the Rater for his or her records, along with documentation on the ventilation system, the full load calculations, the AHRI certificate, and the balancing report. Therefore, the load calculations, which will commonly be completed according to Manual J, must be documented for each certified home. In contrast, the Rater is not required to collect documentation related to Manual D and Manual S. For the documentation related to Manual J, if multiple certified homes have the same plan and HVAC design (and, therefore, the same load calculations documentation would be provided), then the Rater is permitted to choose to keep an individual copy of this documentation for each home or to keep a single copy of this documentation in a central location. In the latter case, the Rater must have a reliable system to link each certified home to the associated documentation.
00497	**07/08/2014**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 1.2.1 & Footnote 4: Refined design temperature limits and exception process**
				Issue: Partners have indicated that it is difficult to both meet and assess compliance with the outdoor design temperature limits of the program. This occurs for several reasons – multiple data sources are available, assessing the 'geographically closest location' may be an ambiguous process, and partners that build in a metropolitan area may find that adjacent subdivisions are closest to different weather stations (adding to the complexity of the certification process). In addition, the current allowance for the designer to provide the Rater with a justification when using some place other than the closest geographic location has created additional uncertainty about how to assess compliance.
				Resolution: To clarify the intent and ensure more consistent enforcement of this Item, county-level outdoor design temperature limits have been defined and posted as a resource to www.energystar.gov/hvacdesigntemps. As a result, Item 1.2.1, which will be moved to Item 4.2.1 on the Rater Design Review Checklist, will be refined to reflect this new resource, as follows: "Cooling season and heating season outdoor design temperatures used in loads (3.3) are within the limits defined at energystar.gov/hvacdesigntemps for the State and County where the home will be built, or the designer has provided an allowance from EPA to use alternative values" As a result of this change in policy, Footnote 4, which is associated with this Item, will be removed and replaced with Footnote 8 of the Rater Design Review Checklist. This new Footnote will read as follows:

				"Visit energystar.gov/hvacdesigntemps for the maximum cooling season design temperature and minimum heating season design temperature permitted for ENERGY STAR certified homes and the process for a designer to obtain an allowance from EPA. The same design report is permitted to be used in other counties, as long as the design temperature limits in those other counties meet or exceed the cooling and heating season temperature limits for the county selected. For example, if Fauquier County, VA, is used for the load calculations, with a 1% cooling temperature limit of 93 F, then the same report could be used in Fairfax County (which has a higher limit of 94 F) but not in Arlington County (which has a lower limit of 92 F)."
00432	**07/08/2014**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 1.2.3 – Addition of tolerance for number of occupants**
				Issue: Partners have requested that a tolerance be added to this Item, which currently requires the Rater to verify that the number of occupants documented by the HVAC designer exactly equals the number of bedrooms in the Rated home plus one. Under this currently policy, a deviation of even one occupant would not meet the intent, despite a relatively small impact on the overall load of the home. This sometimes occurs when a load calculation has been completed for a house plan with options that would alter the quantity of bedrooms.
				Resolution: A variance of ± 2 occupants will be added to Item 1.2.3 of this Checklist. This will maintain the original intent of ensuring that designers use an occupant count that generally reflects the Rated home, yet eliminate the majority of disruptions in the certification process related to this input.
00498	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Item 1.2.4 - Accounting for conditioned floor area of a heated garage**
				Issue: Partners have asked if the conditioned floor area used in the home's load calculations and the conditioned floor area in the rated home is permitted to differ by more than ±10% when caused by the inclusion of the floor area of a directly conditioned garage. RESNET Interpretation 2010-02 states, in part, that a heated garage is not currently defined as a 'rated feature' in the standards, and thus is not modeled as conditioned space nor included in the CFA of the rated home.
				Resolution: For a home with a heated garage, the conditioned floor area used in the home's load calculations minus the floor area of the heated garage shall be within ±10% of the conditioned floor area of the rated home. In such cases, the Home Energy Rater shall mark Item 1.2.4 as complete and include a note to explain that the intent of this Item is satisfied when the conditioned floor area of the heated garage is excluded from the comparison of conditioned floor areas.
00499	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 1.2.9 - Cooling Equipment Over-Sizing Limits**
				Issue: Partners have noted that a new version of ACCA Manual S has been released, with revised limits on equipment over-sizing. In addition, multiple partners have expressed challenges with assessing the intent and enforcement of the phrase "next nominal size".

Specifically, it is unclear whether the “next nominal size” allowance should be applied relative to the load or relative to the over-sizing limit of Manual S. In addition, Raters have noted that it is difficult to assess whether the “next nominal size” has been selected unless they consult OEM product data

Resolution: To clarify the intent and enforcement of the cooling equipment over-sizing limits for the program, the limits will be aligned with the new version of ACCA Manual S. In addition, the phrase “next nominal size” will be replaced with a quantitative allowance.

For a detailed explanation of how these changes will impact HVAC Designers, see Policy Record 00483. As part of these changes, two key fields will be added to the HVAC Design Report to enable better enforcement of cooling over-sizing limits by Raters, Items 4.13 and 4.15.

To more clearly document the percent over-sizing of the cooling equipment selected relative to the total heat gain, Item 4.13 will be added to the HVAC Design Report, as follows:

“Cooling sizing % = Total capacity (Item 4.11) divided by maximum total heat gain (Item 3.12): _____ %”

To clearly convey the new over-sizing limits in ACCA Manual S, which are dependent upon the equipment type, compressor type, and climate conditions, Item 4.15 will be added to the HVAC Design Report. Furthermore, in lieu of the “next nominal size” allowance, a quantitative allowance will be provided for cooling equipment and incorporated into this table. Finally, for the designer to clearly indicate which over-sizing limit applies for the cooling system, they will be asked to check the box of the applicable limit. These changes will be reflected in Item 4.15 of the HVAC Design Report, as follows:

“Check box of applicable cooling sizing limit from chart below:”

Equipment Type (Per Item 4.2) & Climate Condition (Per Item 4.14)	Compressor Type (Per Item 4.8)		
	Single-Speed	Two-Speed	Variable-Speed
For Cooling-Only Equipment or For Cooling Mode of Heat Pump in Condition A Climate	☐ Recommended: 90 – 115% Allowed: 90 – 130%	☐ Recommended: 90 – 120% Allowed: 90 – 140%	☐ Recommended: 90 – 130% Allowed: 90 – 160%
For Cooling Mode of Heat Pump in Condition B Climate	☐ 90% - 100%, plus 15 kBtuh	☐ 90% - 100%, plus 15 kBtuh	☐ 90% - 100%, plus 15 kBtuh

Furthermore, two Footnotes will be added to clarify the new allowances and to provide an alternative allowance for low-load spaces, as follows:

“Equipment shall be selected using the maximum total heat gain in Item 3.12 and the total heat loss in Item 3.14 per ACCA Manual S, Second Edition, except that cooling ranges above ACCA Manual S limits are temporarily allowed, per Item 4.15.”

“As an alternative for low-load spaces, a system match-up including a single-speed compressor with a total capacity ≤ 20 kBtuh is permitted to be used in spaces with a total

				cooling load ≤ 15 kBtuh. A system match-up including a two-speed or variable-speed compressor with a total capacity ≤ 25 kBtuh is permitted to be used in spaces with a total cooling load ≤ 18 kBtuh." As a result of these two new fields on the HVAC Design Report, Item 1.2.9 on the HVAC System QI Rater Checklist will be moved to Item 4.2.8 of the Rater Design Review Checklist and revised, as follows: "Cooling sizing % (4.13) is within the cooling sizing limit (4.15) selected by the HVAC designer" Footnote 7, which defined the "next nominal size" allowance, will be deleted. As a result of these changes, Raters will be able to quickly and quantitatively assess whether designers have met the over-sizing limits of the program.
00054	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 1.2.9 – Sizing heat pumps in cold climates**
				Issue: Partners have asked whether the listed total cooling capacity limits noted in Item 1.2.9 contain exemptions for heat pump systems in cold climates, as these systems are typically sized to the heating load, which can be significantly higher than the cooling load.
				Resolution: ACCA Manual S provides less stringent oversizing limits when the cooling load is substantially smaller than the heating load and adjustable-speed equipment is used. According to Manual S: "The allowable margin of excess capacity will depend on the relative size of the design cooling load and design heating load: • "If the cooling load is substantially larger than the heating load, the limit on excess cooling capacity is identical to the limit that applies to single speed equipment. • "If the cooling load is substantially smaller than the heating load, an absolute limit on the amount of excess cooling capacity is not required because the equipment can be operated at a reduced capacity during the cooling season. However, this does not mean that the amount of excess cooling capacity is irrelevant. In this regard, the designer must make sure the system will provide adequate humidity control during any possible operating condition." Therefore, partners may use variable or dual-speed cooling equipment that does not meet the strict oversizing limits of Item 1.2.9 if the cooling load is substantially smaller than the heating load. In contrast, if the cooling load is substantially larger than the heating load, the same strict oversizing limits apply. In that case, Footnote 7 provides some flexibility to select equipment based on available equipment size increments, particularly for multi-speed equipment. Footnote 7 reads: "For cooling systems, the next largest nominal piece of equipment may be used that is available to satisfy the latent and sensible requirements. Single-speed systems generally have OEM nominal size increments of ½ ton. Multi-speed or multi-stage equipment

				may have OEM nominal size increments of one ton. Therefore, the use of these advanced system types can provide extra flexibility to meet the equipment sizing requirements.”
00226	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 05)**	**Change**	**Item 1.2.12 – Rater review of contractor refrigerant testing**
				Issue: Item 7.9 of the HVAC System Quality Installation Contractor checklist defines an allowable subcooling or superheat deviation of ±3 °F and ±5 °F, respectively. However, during the Rater review of the HVAC contractor’s refrigerant tests, no such allowable deviation is noted. Item 1.2.12 states “Calculated subcooling (7.1 minus 6.4) or superheat (6.6 minus 7.5) value equals the reported target subcooling (7.3) or superheat (7.7) temperature.”
				Resolution: The purpose of this Item is for the Rater to calculate the superheat or subcooling temperature using the values reported by the HVAC contractor and to verify that this temperature is within the allowable deviation from the contractor-reported target value. Item 1.2.12 will be revised as follows: “Calculated subcooling (7.1 minus 6.4) value is within ±3 °F of the reported target temperature (7.3) or calculated superheat (6.6 minus 7.5) value is within ±5 °F of the reported target temperature (7.7).”
00055	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 1.3 – Acceptable documentation for whole-building mechanical ventilation design**
				Issue: Partners have asked whether a manufacturer’s instruction sheet or a designer’s documentation showing run-time pattern requirements and control locations would meet the intent of Item 1.3, which requires that documentation be attached with the ventilation system type, location, design rate and frequency.
				Resolution: A designer’s documentation showing run-time pattern requirements would meet the intent of Item 1.3. A manufacturer’s instruction sheet may meet the intent of this requirement if it clearly identifies the ventilation design rate and frequency that has been selected for the rated home. That is to say, mechanical ventilation equipment can be run in multiple ways to meet the ventilation requirements of the ASHRAE standard and it may not be apparent from the instruction sheet alone which strategy has been selected. For example, a bathroom exhaust fan may be run continuously at one rate or intermittently at a higher rate to satisfy the requirement. If the designer indicates on the instruction sheet which ventilation design rate and frequency have been selected, then the intent for this item would be met.
00227	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Addition of Item 1.5 - Verification of HVAC contractor credentials**
				Issue: Partners have noted that the checkbox on the first page of the Inspection Checklists, which requires Raters to verify that the HVAC contractor holds the credentials necessary to complete the HVAC System QI Contractor Checklist, may often be overlooked due to its location. Partners have also asked, in cases where only Section 1 of the HVAC System QI

				Contractor Checklist is required to be completed, must a credentialed HVAC contractor complete this Section?
				Resolution: To ensure that Raters consistently verify that the HVAC contractor holds credentials necessary to complete the HVAC System QI Contractor Checklist, this requirement and associated Footnote will be added as an Item to Section 1. Only a credentialed contractor is permitted to complete Section 6 through 12 of the HVAC System QI Contractor Checklist. In contrast, the builder (or a firm or HERS Rater hired by the builder) or a credentialed contractor (or a firm or HERS Rater hired by the contractor) is permitted to complete Sections 1 through 5 of the HVAC System QI Contractor Checklist. As a result, if any Item in Sections 6 through 12 of the HVAC System QI Contractor Checklist is applicable to the home and, therefore, completed by an HVAC contractor, then the Rater must confirm that the contractor holds the necessary credentials. To clarify this intent, the Footnote associated with the new Item in Section 1 of this Checklist will be revised as follows: "If any Item in Sections 6 through 12 of the HVAC System QI Contractor Checklist is applicable to the home and, therefore, completed by an HVAC contractor, then the Rater must confirm that the contractor holds the necessary credentials. HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this credentialing process and links to H-QUITOs, which maintain lists of credentialed contractors, can be found at www.energystar.gov/newhomesHVAC."
00500	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Sections 2, 3, and 4 – Transition to Section 6 of the Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: As part of an overall transition from the HVAC System QI Rater Checklist to the Rater Field Checklist, Sections 2 through 4, which all pertain to the duct system, will be moved to Section 6 of the Rater Field Checklist. The heading of this new Section will be named "Duct Quality Installation" and will indicate that its requirements apply to heating, cooling, ventilation, exhaust, & pressure-balancing ducts unless noted in a Footnote. Detailed explanations of the revisions and refinements follow. The qualitative installation requirements in Items 2.1 through 2.3 will be merged into a single Item, Item 6.1 on the Rater Field Checklist, which will read as follows:

				"Ductwork installed without kinks, sharp bends, compressions, or excessive coiled flexible ductwork" The associated Footnotes will also be merged and the requirements related to balancing dampers will be removed because this commissioning test will be made a recommendation, rather than a requirement. The Footnote will read as follows: "Kinks are to be avoided and are caused when ducts are bent across sharp corners such as framing members. Sharp bends are to be avoided and occur when the radius of the turn in the duct is less than one duct diameter. Compression is to be avoided and occurs when flexible ducts in unconditioned space are installed in cavities smaller than the outer duct diameter and ducts in conditioned space are installed in cavities smaller than inner duct diameter. Ducts shall not include coils or loops except to the extent needed for acoustical control." Item 2.4 will be removed. While supporting flexible ducts at intervals recommended by the manufacturer is valuable, EPA believes that the other qualitative assessments included in Item 6.1 are more valuable and should be prioritized first. Item 2.5 will be removed because it is redundant in the sense that building cavities that are used as ducts must already meet all of the duct requirements. In an effort to streamline the paperwork required to certify a home, as well as the certification process itself, Item 2.6 will be removed. While inspecting specifically for ducts running in exterior walls does provide some value, this occurrence is relatively rare compared to the other qualitative duct inspections required. Furthermore, the insulation requirements for ducts will still apply to ducts in these locations, so much of the intent of this Item will continue to be met despite its removal. Because Raters will no longer be required to review the HVAC contractor's commissioning work, including the quantity and location of supply and return duct terminals, Item 2.7 and its associated Footnote will be removed. Based on feedback from partners, the option to provide 1 sq. in. of free area opening per 1 CFM of supply air will be removed from Item 2.8 as part of an overall effort to simplify the program documents. The performance-based compliance option in Item 2.8 and associated Footnotes will be moved to Item 6.2 of the Rater Field Checklist. In addition, an alternative pressure limit will be added for bedrooms with a design airflow ≥ 150 CFM. For details about this alternative, see Policy Record 00435. As a result of the removal of the Prescriptive Path, the Prescriptive Path requirements of Item 3.2 will be removed. Additionally, the remaining portion of Item 3.2, Item 3.1, and Item 3.3 will be condensed and become Item 6.3 of the Rater Field Checklist. This Item will read as follows: "All supply and return ducts in unconditioned space, including connections to trunk ducts, are insulated to ≥ R-6." Because these Items will be in a Section whose header includes local mechanical exhaust and exhaust-only whole-house ventilation, a phrase will be added to Footnote 15 excluding these

				types of ducts from meeting the requirements of Item 6.3 of the Rater Field Checklist. Footnote 15 will be moved to Footnote 35 of the Rater Field Checklist and will be revised as follows: "Item 6.3 does not apply to ducts that are a part of local mechanical exhaust and exhaust-only whole-house ventilation systems. EPA recommends, but does not require, that all metal ductwork not encompassed by Section 6 (e.g., exhaust ducts, duct boots, ducts in conditioned space) also be insulated and that insulation be sealed to duct boots to prevent condensation." Finally, Items 4.1 and 4.2 will be moved to Items 6.4 and 6.5 on the Rater Field Checklist. Changes and alternatives to the duct leakage limits defined in these Items are discussed in Policy Record 00436 and 00433.
00140	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Section 2 – Whole-house mechanical ventilation system installation**
				Issue: Partners have noted that the heading in Section 2, Duct Quality Installation, indicates that the requirements of this Section apply to ventilation ducts. However, some of the Items in this Section do not seem generally applicable to homes in which the only forced-air system is a ventilation system (e.g., homes with hydronic heating systems and no air conditioning). Specifically, Partners have asked the following: 1. Item 2.7 requires the Rater to verify the quantity and location of supply and return duct terminals based on a balancing report from the contractor. However, the Contractor Checklist does not indicate that Section 10 of that Checklist, Air Balancing, applies to ventilation ducts. Therefore, does Item 2.7 apply to such homes? Item 2.8 requires that bedrooms be pressure-balanced. Partners have asked if it is truly EPA's intent to ensure that bedrooms are pressure-balanced in such homes.
				Resolution: The intent of requiring quality duct installation practices for ventilation ducts is to help ensure that ventilation system performance is not compromised by improper installation practices such as kinked, excessive, coiled, compressed, or inadequately supported ductwork. This intent is captured in Items 2.1 through 2.4, which apply to ventilation ducts. Items 2.5 and 2.6 help prevent excessive leakage and mitigate the risk of moisture problems caused by poor duct location and installation and also apply to ventilation ducts. ASHRAE 62.2-2010 does not prescribe room-level duct design requirements for the ventilation system. Therefore, Items 2.7 and 2.8 are not applicable to ventilation ducts and a new footnote will be added to the heading of Section 2 and to these two Items. The new footnote will read as follows: "Items 2.7 and 2.8 do not apply to ventilation ducts."
00338	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Item 2.5 – Insulating panned duct returns**
				Issue: Partners have asked if panned duct returns must be insulated.
				Resolution: As stated in Item 2.5, building cavities used as return ducts must meet the insulation requirements of Item 3.3. Item 3.3 requires that all supply and return ducts located in

				unconditioned space must be insulated to R-6. Therefore, if panned returns are used and are located in unconditioned space, they must be insulated. If the panned returns are located in conditioned space, duct insulation is recommended, but not required.
00435	**08/14/2014**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 2.8 – Higher pressure limit for bedrooms with design airflow ≥ 150 CFM**
				Issue: Multiple partners have indicated that they are having trouble meeting the requirement to achieve a pressure differential ≤ 3 Pa with respect to the main body of the house, when the design airflow into the room is ≥ 150 CFM. This typically occurs in hot climates in master bedrooms, which are often the largest bedrooms in the house. Design airflows in hot climates also tend to be higher than in cold climates. While the use of a dedicated return in the master bedroom will often resolve this problem, and has become standard practice in some markets, this is not true in other markets.
				Resolution: The pressure balancing limit in Item 2.8 will be increased for bedrooms with a high design airflow. While the true target is actually 0 Pa for optimal comfort and efficiency, and the current limit of 3 Pa is achievable for most bedrooms, challenges are more commonly encountered when the design airflow into the room is higher than approximately 150 CFM (e.g., in a master bedroom in a hot climate). For these bedrooms with a high design airflow, the use of a dedicated return (as opposed to a transfer grille or jump duct) will often result in compliance with the current limit, as well as provide ancillary benefits like enhanced privacy. However, for partners that do not routinely use dedicated returns at this time, architectural constraints can make it difficult to use jump ducts or transfer grilles that are large enough to achieve 3 Pa. To accommodate these challenges, the pressure balancing limit will be raised from 3 Pa to 5 Pa for bedrooms with a design airflow ≥ 150 CFM. In addition, to clarify the level of precision required to meet this item, it will be clarified that the Rater-measured pressures shall be rounded to the nearest whole number to assess compliance. This signifies that a value of 3.4 Pa would meet the intent of this Item for rooms with a design airflow below 150 CFM, but a value of 3.5 Pa would not. To reflect these changes, a new Footnote will be added to Item 2.8, as follows: "As an alternative to the 3 Pa limit, a Rater-measured pressure differential ≤ 5 Pa is permitted to be used for bedrooms with a design airflow ≥ 150 CFM. The Rater-measured pressure shall be rounded to the nearest whole number to assess compliance."
00056	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 2.8 – Bedroom door configuration for room pressure-balancing**
				Issue: Item 2.8 requires Raters to verify that bedrooms are pressure-balanced by either calculating the free area of vents and openings to the main body of the home or by testing the pressure differential between the bedroom and the home. Partners have asked whether, when testing the pressure differential, all bedroom doors should be closed or if only the door to the

				bedroom being tested should be closed. Partners have also asked if, when multiple air handlers are present in the home, all air handlers must be operating during the test or if only the air handler that serves the room being tested should be operating.
				Resolution: When testing room pressure balancing, all bedroom doors shall be closed and all air handlers shall be operating. Requiring that Raters close all bedroom doors and operate all air handlers during testing will improve the consistency of the test and is presumed to create a worst-case condition, which may occur during nighttime hours. Item 2.8 will be revised as follows: "Bedrooms pressure-balanced using any combination of transfer grills, jump ducts, dedicated return ducts, and / or undercut doors to either: a) provide 1 sq. in. of free area opening per 1 CFM of supply air, as reported on the contractor-provided balancing report; or b) achieve a Rater-measured pressure differential ≤ 3 Pa (0.012 in. w.c.) with respect to the main body of the house when all bedroom doors are closed and all air handlers are operating."
00228	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev.05)**	**Comment**	**Item 2.8 – Use of dedicated return ducts in each bedroom is not mandatory**
				Issue: Partners have asked if dedicated return air ducts are required in each bedroom to comply with Item 2.8.
				Resolution: Dedicated return ducts in each bedroom are permitted to be used for compliance with Item 2.8 but are not required. Item 2.8 states that any combination of transfer grills, jump ducts, dedicated return ducts, and / or undercut doors is permitted to be used to meet the two compliance options listed in this Item.
00339	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Refinement**	**Item 2.8 – Removal of Inches Water Column equivalent to Pascals**
				Issue: Partners have noted that Item 2.8 includes the equivalent value of the allowable pressure differential of 3 Pascals in Inches Water Column (IWC). Because a large majority of partners are used to assessing air pressure differentials in Pascals, listing the equivalent IWC value does not add significant value.
				Resolution: To avoid the use of unnecessary language, "(0.012 in. w.c.)" will be removed from Item 2.8.
00057	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Footnote 12 – Clarification of ducts that require insulation**
				Issue: Partners have requested that EPA clarify the intent of Footnote 12. The footnote reads, "EPA recommends, but does not require, that all metal ductwork (e.g., exhaust ducts, duct boots) be insulated and that insulation be sealed to duct boots to prevent condensation." To some partners, this language appears to contradict Section 3, which does require insulation for connections to trunk ducts in unconditioned spaces and for supply ducts in unconditioned attics. Partners have also asked whether Footnote 12 requires or recommends insulation on ducts in conditioned space.

				Resolution: In order to eliminate the apparent contradiction between Section 3 and Footnote 12, EPA will revise Footnote 12 to read as follows: "EPA recommends, but does not require, that all metal ductwork not encompassed by Section 3 (e.g., exhaust ducts, duct boots, ducts in conditioned space) also be insulated and that insulation be sealed to duct boots to prevent condensation."
00058	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Footnote 13 – Exemption for testing duct leakage**
				Issue: Partners have asked if a home would still have to pass the total duct leakage test when testing of duct leakage to the outdoors is waived because a home's envelope leakage is less than or equal to half the Prescriptive Path's infiltration limit for its climate zone.
				Resolution: Per Footnote 13, the Rater is only exempted from testing the duct leakage to the outdoors if all ducts and air handling equipment are within conditioned space AND the infiltration is less than or equal to half the limit for that climate zone. If both of these criteria have been met, then the Rater is exempted from testing the duct leakage to the outdoors, but still must perform the total duct leakage test. There is no waiver for testing the total duct leakage.
00229	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev.05**	**Change**	**Section 4 – Partial duct leakage test exemption for balanced ventilation ducts**
				Issue: Partners have asked if balanced ventilation ducts are required to meet the duct leakage requirements of Section 4.
				Resolution: For balanced ventilation ducts (e.g., ducts that distribute air to or from an HRV or ERV system) that are not connected to space heating or cooling systems, a Rater is permitted to visually verify, in lieu of duct leakage testing of the balanced ventilation ducts, that all seams and connections are sealed with mastic or metal tape and all duct boots are sealed to floor, wall, or ceiling using caulk, foam, or mastic tape. This exemption does not apply to balanced ventilation ducts that are connected to space heating or cooling systems. The following sentence will be added to Footnote 16 of the HVAC System Quality Installation Rater Checklist to reflect this clarification: "For *balanced ventilation ducts* that are not connected to space heating or cooling systems, a Rater is permitted to visually verify, in lieu of duct leakage testing, that all seams and connections are sealed with mastic or metal tape and all duct boots are sealed to floor, wall, or ceiling using caulk, foam, or mastic tape."
00340	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Section 4 – Addition of alternative option to test total duct leakage at 'rough-in'**
				Issue: Partners have requested that an alternative test option be added that permits Raters to measure total duct leakage when the HVAC system is at 'rough-in', rather than at 'final'. The duct testing requirements contained in Section 4 of the HVAC System QI Rater Checklist (HVAC-R) currently require that testing be performed at 'final'.

				Resolution: EPA will add an alternative test option for partners to measure total duct leakage when the HVAC system is at 'rough-in', if they so choose. This alternative test option will have no impact on partners that currently test at 'final' and want to continue to do so. For the purposes of this alternative, 'rough-in' will be defined as when the air handler and all ductwork, building cavities used as ductwork, and duct boots are installed. The only components *not* in place at 'rough-in' will be: a) the registers and b) the drywall (or other subsurface) that the duct boots will be sealed to. Additionally, cabinets (e.g., kitchen, bath, multimedia) or ductwork that connect duct boots to toe-kick registers are not required to be in place during the 'rough-in' test. Because the HVAC system at 'rough-in' will not have the drywall or other subsurface in place that the duct boots will be sealed to, a mandatory requirement will be included with this alternative test option for the Rater to visually verify at final inspection that *all* duct boots are sealed to the finished surface. With regards to the leakage limit, the 'rough-in' alternative test option will align with 2012 IECC requirements of 4 CFM per 100 square feet of conditioned floor area. To assist with the transition to this more aggressive 'rough-in' leakage target, leakage of 6 CFM per 100 square feet of conditioned floor area is allowed to be used for homes permitted in 2013. Note that duct leakage testing to outdoors at final will still be required for homes that do not meet the 4 CFM per 100 square feet target at 'rough-in'. The addition of this alternative option is designed to provide partners with a test option that aligns with the time that they can most easily fix problems, at 'rough-in', prior to the installation of the drywall that conceals the ductwork. In addition, the option provides partners with a target that aligns with the more stringent requirements of the 2012 IECC, which may assist them with future code compliance. Last, but not least, the more stringent leakage limit required for this alternative test option will most likely result in final leakage at or below 8 CFM per 100 square feet of conditioned floor area, maintaining the original intent of the program requirements. To reflect these changes, Item 4.1 will be revised as follows: "4.1 Total Rater-measured duct leakage meets one of the following two options: 4.1.1 Rough-in: ≤ 4 CFM25 per 100 sq. ft. of CFA with air handler and all ductwork, building cavities used as ductwork, & duct boots installed. In addition, all duct boots sealed to finished surface, Rater-verified at final. 4.1.2 Final: ≤ 8 CFM25 per 100 sq. ft. of CFA with the air handler and all ductwork, building cavities used as ductwork, duct boots, & register grilles atop the finished surface (e.g., drywall, flooring) installed." Additionally, a new Footnote will be added to 4.1.1: "Cabinets (e.g., kitchen, bath, multimedia) or ductwork that connect duct boots to toe-kick registers are not required to be in place during the 'rough-in' test. *For homes permitted through*

				12/31/2013: Homes are permitted to be certified if rough-in leakage is ≤ 6 CFM25 per 100 sq. ft. of CFA with air handler and all ductwork, building cavities used as ductwork, & duct boots installed." Finally, the statement in Footnote 17 stating that duct testing is to occur "only after all components of the system have been installed including the air handler, the ductwork, the duct boots, and the register grilles atop the finished surface (e.g., drywall, carpeting, flooring)" will be deleted because relevant guidance is now provided directly in Item 4.1.
00436	**11/05/2014**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 4.1 – Increased total duct leakage limit for a duct system with three or more returns**
				Issue: Several partners have indicated continued challenges meeting the total duct leakage limit in Item 4.1 of the Checklist for a duct system with three or more returns (e.g., a system with dedicated returns from each bedroom). These challenges are occurring due to several factors: • Some designers believe there are inherent benefits to multiple dedicated returns (e.g., comfort, enhanced privacy, aesthetics) relative to a single central return and, therefore, are not inclined to use a single central return strategy that would more easily meet the leakage limit. • Some designers have resisted changing from panned dedicated returns to ducted dedicated returns that would more easily meet the leakage limit when the system has three or more returns, due to the relative cost compared to the perceived benefit. • The inherent increase in total duct length for a system with three or more returns, relative to a single central return, is not reflected in the leakage limit. Relatedly, a system with a single central return utilizes portions of the home, such as a hallway, as a return air pathway that is not captured in the duct leakage. As a result, a home with three or more returns has an inherent disadvantage in meeting the duct leakage limit. Outreach was conducted with multiple partners that operate primarily in cold climates. The feedback provided indicated that while many markets have, in fact, devised strategies to consistently meet this requirement, for markets that have not transitioned away from multiple panned dedicated returns the requirement still presents a significant challenge.
				Resolution: Given the collective input from multiple partners in cold climates, representing a wide range of opinions (i.e., from having no challenges with the current requirement to having significant challenges with the current requirement), an increased limit on total duct leakage will be provided for a duct system with three or more returns. For example, if a home contains one duct system for the upper level and a second duct system for the lower level, and each duct system contains three or more returns, then the higher total duct leakage limit would be applicable to both duct systems.

				As another example, if a home contains one duct system for the upper level with three returns and a second duct system for the lower level with one return, then the higher total duct leakage limit would only be applicable to the duct system serving the upper level. To reflect this change, a single new Footnote will be added to Items 4.1.1 and 4.1.2 as follows: "For a duct system with three or more returns, the total Rater-measured duct leakage is permitted to be the greater of ≤ 6 CFM25 per 100 sq. ft. of CFA or ≤ 60 CFM25 at 'rough-in' or the greater of ≤ 12 CFM25 per 100 sq. ft. of CFA or ≤ 120 CFM25 at 'final'."
00431	**06/10/2014**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 4.1 – Increased total duct leakage limit for homes with only dedicated returns**
				Issue: Policy Record Entry 00436 contains the most recent resolution of this issue. This issue (ID 00431) is only being retained to maintain a complete Policy Record. Several partners have indicated continued challenges meeting the total duct leakage limit in Item 4.1 of the Checklist for homes with a dedicated return in each bedroom (i.e., not a bedroom pressure-balancing feature leading to a central return). These challenges are occurring due to several factors: • Some designers believe there are inherent benefits to dedicated returns (e.g., comfort, enhanced privacy, aesthetics) relative to central returns and, therefore, are not inclined to use a central return strategy that would more easily meet the leakage limit. • Some designers have resisted changing from panned dedicated returns to ducted dedicated returns that would more easily meet the leakage limit, due to the relative cost compared to the perceived benefit. • The inherent increase in total duct length for a home with dedicated returns, relative to a central return, is not reflected in the leakage limit. Relatedly, central returns utilize portions of the home, such as a hallway, as a return air pathway that is not captured in the duct leakage. As a result, a home with dedicated returns has an inherent disadvantage in meeting the duct leakage limit. Outreach was conducted with multiple partners that operate primarily in cold climates. The feedback provided indicated that while many markets have, in fact, devised strategies to consistently meet this requirement, for markets that have not transitioned away from panned dedicated returns the requirement still presents a significant challenge.
				Resolution: Policy Record Entry 00436 contains the most recent resolution of this issue. This issue (ID 00431) is only being retained to maintain a complete Policy Record. Given the collective input from multiple partners in cold climates, representing a wide range of opinions (i.e., from having no challenges with the current requirement to having significant challenges with the current requirement), an increased limit on total duct leakage will be provided for homes with a dedicated return in each bedroom, to maintain the overall original intent of this requirement while continuing to transform the marketplace.

				To reflect this change, a single new Footnote will be added to Items 4.1.1 and 4.1.2 as follows: "For a home with a dedicated return in each bedroom (i.e., not a bedroom pressure-balancing feature leading to a central return), the total Rater-measured duct leakage is permitted to be the greater of ≤ 6 CFM25 per 100 sq. ft. of CFA or ≤ 60 CFM25 at 'rough-in' or the greater of ≤ 12 CFM25 per 100 sq. ft. of CFA or ≤ 120 CFM25 at 'final'."
00141	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Change**	**Item 4.1 – Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit in Item 4.1 for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: Reducing total duct leakage can improve system efficiency, enhance occupant comfort, and minimize comfort and durability problems associated with pressurizing or depressurizing interstitial cavities in homes. Because of the high total duct leakage typically caused by panning, Item 4.2 prohibits using building cavities as supply or return ducts unless they meet the insulation and leakage requirements of Item 3.2, 3.3, 4.1, and 4.2. In cases where partners cannot meet these items, they must use other duct designs that do meet the minimum insulation levels and maximum leakage thresholds. However, to ease implementation for partners while retaining the value of a duct system with low total leakage compared to standard practice, Item 4.1 will be revised as follows: "Total Rater-measured duct leakage ≤ 8 CFM25 per 100 sq. ft. of conditioned area." Partner feedback indicated that 8 CFM25 of total leakage per 100 sq. ft. of conditioned area is achievable in both large and small homes. Because the total duct leakage threshold will now be the same for all homes, Footnote 16, which addresses duct leakage thresholds for small homes (< 1,200 sq. ft.), will remove the reference to total duct leakage and will only apply to Item 4.1 and not to Item 4.2. In addition, to improve clarity, all exemptions related to duct testing will be merged into this Footnote. Footnote 16 will be revised as follows: "For homes that have < 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area. 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. Alternatively, testing of duct leakage to the outside can be waived 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.”
00341	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Item 4.1 – Exemption for ducts in conditioned space**
				Issue: Partners have asked if total duct leakage testing can be waived when ducts are in conditioned space.
				Resolution: Footnote 18 of the HVAC System QI Rater Checklist states: “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.” Therefore, if the conditions listed in Footnote 18 are met, testing *duct leakage to the outside* can be waived. However, testing *total duct leakage* is a mandatory requirement for all certified homes, regardless of the home’s envelope leakage or HVAC equipment location.
00342	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 4.1 – Revised duct leakage test methodology for registers atop carpet**
				Issue: Several partners have expressed that they are having difficulty meeting the duct leakage requirement in Item 4.1 when systems include registers atop carpets. Although registers are permitted to be sealed at both the face and the perimeter during the test, many partners have noted that it is difficult to seal these registers in a manner that prevents leakage from occurring between the register and the carpet or between the carpet and the carpet pad.
				Resolution: To remove the unintended challenge of sealing registers atop carpets during duct leakage testing, registers atop carpets will be permitted to be removed and the face of the duct boot temporarily sealed (e.g., with a foam block, by taping the boot to the subfloor) during testing. In such cases, however, the Rater must visually verify that the gap between the boot and subfloor has been durably sealed (e.g. using duct mastic or caulk) to prevent leakage during normal operation, because such leakage will no longer be captured during the test. Note that this change does not apply to a register atop other finished floor materials (such as tile, wood, and laminate), for which the Rater must leave the register in place and seal it per the guidance in Footnote 17. To reflect this change, a Footnote will be added to Item 4.1 that reads as follows: “Registers atop carpets are permitted to be removed and the face of the duct boot temporarily sealed during testing. In such cases, the Rater shall visually verify that the boot has been durably sealed to the subfloor (e.g. using duct mastic or caulk) to prevent leakage during normal operation.”
00501	**07/01/2015**		**Comment**	**Item 4.1 – Total duct leakage testing with toe kick registers**

		HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)		**Issue:** Partners have asked how a Rater should test total duct leakage when the air distribution system uses a cabinet with a toe kick register as part of the air distribution system.
				Resolution: As stated in Footnote 17, cabinets (e.g., kitchen, bath, multimedia) or ductwork that connect duct boots to toe-kick registers are not required to be in place during the 'rough-in' test. Therefore, if the Rater is testing leakage at 'rough-in', the cabinet is not required to be in place and the leakage from this cavity will be excluded. In contrast, if the Rater is testing leakage at 'final', then the Rater shall temporarily seal the system at the register and include leakage through the cabinet as part of the total duct leakage. To further reduce the leakage inside a cabinet, EPA recommends, but does not require, that the HVAC contractor incorporate a duct between the boot and the toe-kick register or seal the cabinet to reduce leakage.
00502	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Item 4.1 – Drywall mud not to be used for duct sealing**
				Issue: Partners have asked if drywall mud can be used for sealing register boots to the finished surface (e.g., drywall) to demonstrate compliance with Item 4.1.1 of the HVAC-C and to decrease leakage in preparation for a total duct leakage test.
				Resolution: Drywall mud is not permitted to be used to seal duct boots to finished surfaces, nor is it permitted to be used to seal any other component of the ductwork for the purpose of reducing leakage.
00503	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Item 4.1 – Total duct leakage measured by Rater**
				Issue: Partners have noted the phrase "Total Rater-measured duct leakage" could be made clearer and more consistent with the phrasing in Item 4.2.
				Resolution: The phrase "Total Rater-measured duct leakage" will be revised to read "Rater-measured total duct leakage" to make it clearer and more consistent with the phrasing in Item 4.2.
00433	**07/08/2014**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 4.1 & 4.2 – Duct leakage limits for systems serving small spaces**
				Issue: Partners have indicated that they are having challenges meeting the total duct leakage limits defined in Item 4.1 for HVAC systems serving small spaces, such as a multifamily dwelling unit or a small zone within a home that has a dedicated system. While total leakage generally decreases as the amount of floor area served by the system decreases, the total leakage ultimately hits a 'floor' – a value that cannot be further decreased without extraordinary effort. This is primarily due to the air handler because the surface area of the enclosure, which generally correlates with the amount of leakage from that component, does not decrease linearly as the amount of floor area served by the system decreases.

				Resolution: To address the challenges that partners are experiencing for systems serving small spaces, an absolute amount of allowed duct leakage will be added to the program requirements. The current limit on total duct leakage at 'rough-in' will be revised to be the greater of ≤ 4 CFM25 per 100 sq. ft. of CFA or ≤ 40 CFM. The current limit on total duct leakage at final will be revised to be the greater of ≤ 8 CFM25 per 100 sq. ft. of CFA or ≤ 80 CFM. While these changes only impact the limits on total duct leakage, the current limit on leakage to outdoors will be aligned with the new limit on total duct leakage at 'rough-in' to simplify the overall policy regarding duct leakage. Item 4.1 and 4.2 will be revised as follows to reflect these changes: "4.1 Rater-measured total duct leakage meets one of the following two options: 4.1.1 Rough-in: The greater of ≤ 4 CFM25 per 100 sq. ft. of CFA or ≤ 40 CFM, with air handler & all ducts, building cavities used as ducts, & duct boots installed. In addition, all duct boots sealed to finished surface, Rater-verified at final. 4.1.2 Final: The greater of ≤ 8 CFM25 per 100 sq. ft. of CFA or ≤ 80 CFM, with air handler & all ducts, building cavities used as ducts, duct boots, & register grilles atop the finished surface (e.g., drywall, floor) installed. 4.2 Rater-measured duct leakage to outdoors the greater of ≤ 4 CFM25 per 100 sq. ft. of CFA or ≤ 40 CFM25." Footnote 17 will be revised as follows to align with this intent: "Cabinets (e.g., kitchen, bath, multimedia) or ducts that connect duct boots to toe-kick registers are not required to be in place during the 'rough-in' test. For homes permitted through 12/31/2013: Homes are permitted to be certified if rough-in leakage is the greater of ≤ 6 CFM25 per 100 sq. ft. of CFA or ≤ 60 CFM25, with air handler & all ducts, building cavities used as ducts, & duct boots installed." Finally, because the limit for leakage to outdoors will be revised in Item 4.2, Footnote 19 will be edited to remove the current allowance of ≤ 5 CFM25 per 100 sq. ft. of CFA in homes ≤ 1,200 sq. ft., as follows: "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 infiltration does not exceed the following: CZ 1-2: 3 ACH50; CZ 3-4: 2.5 ACH50; CZ 5-7: 2 ACH50; CZ 8: 1.5 ACH50. Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is ≤ 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM, whichever is larger."
00142	**01/15/2012**		**Comment**	**Item 4.1 & Item 4.2 - Duct Leakage test procedures**

		HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)		**Issue:** Partners have asked whether, when sealing a register grille to conduct duct leakage tests, only the face of the grille should be sealed or if the perimeter of the grille should also be sealed to the surface beneath (e.g., drywall, carpet, flooring).
				Resolution: Duct leakage test procedures are defined by the RESNET Mortgage Industry National Home Energy Rating System Standards. Appendix A prescribes ASHRAE Standard 152 with several additions and exceptions that are unrelated to how register grilles are to be sealed. ASHRAE 152 contains the following guidance: • When testing supply-side leakage to the outside: "Seal all the registers except those selected in this step." • When testing return-side leakage to the outside: "Ensure that all other registers are sealed…" • When testing total leakage: "Seal all the register grilles or boots." Partners are variously interpreting this language to prohibit sealing the perimeter of register grilles, to require sealing the perimeter of register grilles, or to leave the issue up to Providers' discretion. Until RESNET and / or ASHRAE clarifies the duct leakage testing procedure that Raters are to follow, EPA will consider leakage results from either method (i.e., from sealing only the register face, or from sealing both the register face and perimeter) to be acceptable for the purpose of verifying Items 4.1 and 4.2.
00230	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 5)**	**Clarification**	**Item 4.1 and 4.2 – Duct leakage testing at final**
				Issue: Several partners have asked EPA to clarify at which stage of construction the duct testing in Items 4.1 and 4.2 must occur.
				Resolution: The intent of Item 4.1 and 4.2 is to have the duct system pass the leakage requirements in its final state, which is to say after all components of the system have been installed including the air handler, the ductwork, the duct boots, and the register grilles atop the finished surface (e.g., drywall, carpeting, flooring). A leakage test completed at "rough-in" does not meet this intent, though such a test may be helpful for identifying major leaks that need sealing. The first sentence of Footnote 16 will be revised as follows to clarify this intent: "Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol only after all components of the system have been installed including the air handler, the ductwork, the duct boots, and the register grilles atop the finished surface (e.g., drywall, carpeting, flooring)."
00059	**07/25/2011**		**Comment**	**Item 4.3 – Sealing of duct boots**

		HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)		**Issue:** Partners have asked EPA to clarify if drywall mud is an acceptable material for sealing duct boots to floors, walls, and ceilings.
				Resolution: Drywall mud is not designed for this application because it can become brittle and can crack after drying, preventing an airtight seal between the duct boot and the surrounding surface. For this reason, drywall mud is not an acceptable material for the purpose of meeting this item.
00143	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Change**	**Item 4.3 – Duct boot sealing**
				Issue: Partners have asked if duct boots must be sealed to the ceiling per Item 4.3 when the space above the ceiling is within the thermal and pressure boundary of the home. For example, must duct boots be sealed to the ceiling of the first floor if a conditioned second story is above, or if a cathedralized attic is above?
				Resolution: Because Item 4.1 already limits total duct leakage throughout the duct system, Item 4.3 will be removed so that partners can use their judgment to determine when to seal and inspect duct boots. Note that duct boots will often need to be sealed to floors, walls, and ceilings to meet the total duct leakage limit. This change simply removes duct boot sealing as a mandatory requirement for qualification.
00504	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Sections 5 through 9 – Transition to Sections 7 and 8 of the Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: As part of an overall transition from the HVAC System QI Rater Checklist to the Rater Field Checklist, Sections 5 through 9, which pertain to the whole-house mechanical ventilation system, the local mechanical exhaust systems, and the HVAC controls, will be moved to Sections 7 and 8 of the Rater Field Checklist. The requirements related to the whole-house mechanical ventilation system will be consolidated in Section 7, titled, “Whole-House Mechanical Ventilation System”. The requirements related to the local mechanical exhaust systems will be consolidated in Section 8, titled, “Local Mechanical Exhaust”. The requirements related to HVAC control commissioning will be deleted. Detailed explanations of the revisions and refinements follow. Item 5.1 will be moved to Item 7.1 of the Rater Field Checklist and the tolerances revised, per Policy Record Entry 00434. Item 7.1 will read as follows:

				"Rater-measured ventilation rate is within either ± 15 CFM or ±15% of design value (2.3)" The accompanying Footnote will be revised to reference RESNET Standard 380 as the required methodology for measuring the ventilation rate, upon publication. As a result, Footnote 42 of the Rater Field Checklist will read as follows: "The whole-house ventilation air flow and local exhaust air flows shall be measured by the Rater using RESNET Standard 380 upon publication and, in the interim, a flow hood, flow grid, anemometer, or substantially equivalent method." Items 6.1 through 6.3, along with their associated Footnotes, will be removed. While a quick assessment of whether the heating, cooling, and fan mode of the thermostat is operational does provide value, there are other tasks (i.e., measuring the ventilation and exhaust airflows, verifying HVAC equipment model numbers match the design) that EPA believes are more valuable and that should be prioritized first. EPA will consider whether to reincorporate HVAC control commissioning when future versions of the program are developed. Item 6.4 & 6.5 will be combined into one Item, Item 7.2 of the Rater Field Checklist. Additionally the phrase 'continuously-operating' will be removed to clarify that both intermittent and continuous whole-house ventilation systems must have over-ride controls. This new Item will read as follows: "A readily-accessible ventilation override control installed and also labeled if its function is not obvious (e.g., a label is required for a standalone wall switch, but not for a switch that's on the ventilation equipment)." A new visual verification task will be added as Item 7.3 of the Rater Field Checklist. This new Item will require the Rater to visually verify that no outdoor air intakes are connected to the return side of the HVAC system, unless controls are installed to operate intermittently & automatically based on a timer and to restrict intake when not in use. While this is currently a requirement for the designer in the HVAC System QI Contractor Checklist, it is not currently required to be verified by the Rater. This new Item has been added because uncontrolled ventilation into the return side of the HVAC system can result in significant energy and comfort penalties if the home is over-ventilated. This new Item will read as follows: "No outdoor air intakes connected to return side of the HVAC system, unless controls are installed to operate intermittently & automatically based on a timer and to restrict intake when not in use (e.g., motorized damper)" Section 7, which contains the requirements for ventilation air inlets and ventilation sources, will be combined into a single Item, Item 7.7 of the Rater Field Checklist. Item 7.7 will read as follows to indicate that the Item only needs to be completed if ventilation air inlet locations have been specified on the HVAC Design Report: "Air inlet location (Complete if ventilation air inlet location was specified (2.12, 2.13); otherwise check "N/A"):"

				Footnotes 23 and 25 will be moved to Footnotes 45 and 46 on the Rater Field Checklist, respectively. In addition, an exemption from the visual inspections required in this Item will be added to Footnote 45 of the Rater Field Checklist if the inlets are only visible via rooftop access. As a result, Footnote 45 will read as follows: "Ventilation air inlets that are only visible via rooftop access are exempted from Item 7.7 and the Rater shall mark 'n/a'. The outlet and inlet of balanced ventilation systems shall meet these spacing requirements unless manufacturer instructions indicate that a smaller distance may be used. However, if this occurs the manufacturer's instructions shall be collected for documentation purposes." Items 7.1 and 7.2 will be combined into a single new Item, Item 7.7.2 of the Rater Field Checklist. In addition, the requirements will be simplified by requiring the inlet to be ≥ 2 ft. above grade or the roof deck in all Climate Zones, rather than increasing the height requirement to ≥ 4 ft. in Climate Zones 4 through 8. The item will be further simplified by removing the requirement to visually verify that the inlet is not obstructed by snow, plantings, condensing units or other material at time of inspection. This will simplify the verification process for the Rater, while still reducing the odds that the inlet will be blocked by requiring it to be at least 2 ft. above grade or the roof deck. As a result of this change, Footnote 24, which permits the use of inlet heights below 4 ft. in North Carolina, will be removed because it is no longer necessary. Item 7.7.2 will read as follows: "Inlet is ≥ 2 ft. above grade or roof deck; ≥ 10 ft. of stretched-string distance from known contamination sources (e.g., stack, vent, exhaust, vehicles) not exiting the roof, and ≥ 3 ft. distance from sources exiting the roof" Item 7.3 will be moved to Item 7.7.3 of the Rater Field Checklist with only minor refinements. Item 7.4 will be moved to Item 7.7.1 of the Rater Field Checklist with only minor refinements. Section 8 will be moved to Section 8 of the Rater Field Checklist and will continue to contain the requirements for local mechanical exhaust. In addition to the current requirements for airflow, the existing sound-rating limits for local mechanical exhaust systems in Items 9.1 and 9.2, will be incorporated into Section 8. However, to streamline the certification process and better align it with that of a HERS rating, the sound limits for intermittent bathroom exhaust fans will be made a recommendation, rather than a requirement. Because the sound limits for continuous and intermittent kitchen exhaust fans are already a recommendation, rather than a requirement, only the sound limit for continuous bathroom exhaust fans will remain a requirement. As a result of these changes, the heading for Section 8 will be revised to read: "In each kitchen and bathroom, a system is installed that exhausts directly to the outdoors and meets one of the following Rater-measured airflow and manufacturer-rated sound level standards:"

And Items 8.1 and 8.2 of the Rater Field Checklist will be revised to read:

Location		Continuous Rate	Intermittent Rate
8.1 Kitchen	Airflow	≥ 5 ACH, based on kitchen volume	≥ 100 CFM and, if not integrated with range, also ≥ 5 ACH based on kitchen volume
	Sound	Recommended: ≤ 1 sone	Recommended: ≤ 3 sones
8.2 Bathroom	Airflow	≥ 20 CFM	≥ 50 CFM
	Sound	Required: ≤ 1 sone	Recommended: ≤ 3 sones

The accompanying Footnote regarding airflow measurements will be revised to reference RESNET Standard 380 as the required methodology, upon publication. As a result, Footnote 42 of the Rater Field Checklist will read as follows:

“The whole-house ventilation air flow and local exhaust air flows shall be measured by the Rater using RESNET Standard 380 upon publication and, in the interim, a flow hood, flow grid, anemometer, or substantially equivalent method.”

The two remaining Footnotes associated with this heading, which contain two definitions from ASHRAE 62.2-2010, will be combined into a single Footnote. This Footnote will also be expanded by defining which sound limits are recommended, and which are required. This Footnote, Footnote 47 of the Rater Field Checklist, will read as follows:

“Continuous bathroom local mechanical exhaust fans shall be rated for sound at no less than the airflow rate in Item 8.2. Intermittent bathroom and both intermittent and continuous kitchen local mechanical exhaust fans are recommended, but not required, to be rated for sound at no less than the airflow rate in Items 8.1 and 8.2. Per ASHRAE 62.2-2010, an exhaust system is one or more fans that remove air from the building, causing outdoor air to enter by ventilation inlets or normal leakage paths through the building envelope (e.g., bath exhaust fans, range hoods, clothes dryers). Per ASHRAE 62.2-2010, a bathroom is any room containing a bathtub, shower, spa, or similar source of moisture.”

Items 8.3 through 8.5, along with their associated Footnote, will be removed. While a quick visual inspection of shared exhaust ducts and clothes dryer exhaust ducts does provide value, there are other tasks (i.e., measuring exhaust airflows) that EPA believes are more valuable and that should be prioritized first. Therefore, these Items will be removed to streamline the certification process and better align it with that of a HERS rating. EPA will consider whether to reincorporate additional duct inspections when future versions of the program are developed.

Items 9.1 and 9.2, in addition to being integrated into Section 8, will be combined and added to a new Item in the Rater Field Checklist. This new Item, Item 7.4, will make clear that whole-house mechanical ventilation fans must meet the sound limits in Items 9.1 and 9.2, unless the fan is exempted. Item 7.4 will read as follows:

				"System fan rated ≤ 3 sones if intermittent and ≤ 1 sone if continuous, or exempted" The accompanying Footnote, Footnote 43, will define these exemptions: "Whole-house mechanical ventilation fans shall be rated for sound at no less than the airflow rate in Item 2.3 of the HVAC Design Report. Fans exempted from this requirement include HVAC air handler fans, remote-mounted fans, and intermittent fans rated ≥ 400 CFM. To be considered for this exemption, a remote-mounted fan must be mounted outside the habitable spaces, bathrooms, toilets, and hallways and there shall be ≥ 4 ft. ductwork between the fan and intake grill. Per ASHRAE 62.2-2010, habitable spaces are intended for continual human occupancy; such space generally includes areas used for living, sleeping, dining, and cooking but does not generally include bathrooms, toilets, hallways, storage areas, closets, or utility rooms." Item 9.3, which generally requires bathroom fans used as part of a whole-house mechanical ventilation system to be ENERGY STAR certified, will be refined and moved to Item 7.6 of the Rater Field Checklist as part of the consolidation of all whole-house mechanical ventilation system requirements into Section 7. Item 7.6 will read as follows: "Bathroom fans are ENERGY STAR certified if used as part of the whole-house system" A new Footnote will accompany this Item to accommodate the existing exemption to this requirement. Footnote 44 of the Rater Field Checklist will read as follows: "Bathroom fans with a rated flow rate ≥ 500 CFM are exempted from the requirement to be ENERGY STAR certified." Finally, a new verification task will be added as Item 7.5 of the Rater Field Checklist. This new Item will require the Rater to verify that if the whole-house mechanical ventilation system utilizes the HVAC fan, then the specified fan type is ECM / ICM, per Item 4.7 of the HVAC Design Report, or the controls will reduce the standalone ventilation run-time by accounting for hours when the HVAC system is heating or cooling. While this is currently a requirement for the designer in the HVAC System QI Contractor Checklist, it is not currently required to be verified by the Rater. This new Item has been added because using the HVAC fan for ventilation can result in significant energy consumption if the fan is not efficient, or the run-time reduced by ventilating when possible during heating and cooling cycles. This new Item will read as follows: "If system utilizes the HVAC fan, then the specified fan type is ECM / ICM (4.7), or the controls will reduce the standalone ventilation run-time by accounting for hours when the HVAC system is heating or cooling".
00434	**07/08/2014**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 5.1 – Airflow verification tolerances** **Issue:** Partners have requested that this Item, regarding Rater-measured ventilation airflow, be changed to include a tolerance both below and above the design airflow (instead of the current policy, which only provides a tolerance above the design airflow) and to add an absolute tolerance in addition to the current percentage-based tolerance.

				Resolution: To better reflect the limitations in commissioning and equipment accuracy at low airflow rates, and better reflect this Item's overall intent of achieving a ventilation rate that is generally in the vicinity of the design airflow rate, Item 5.1 will be revised as follows: "Rater-measured ventilation rate is within either ±15 CFM or ±15% of design value (2.3)."
00060	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 5.1 – Validation of contractor-selected ventilation design rate**
				Issue: Partners have asked how they should verify that the design ventilation rate selected by the contractor and listed in Item 2.11 of the HVAC System Quality Installation Contractor Checklist (Rev. 03) was properly calculated.
				Resolution: Item 5.1 requires that the Rater-verified ventilation rate be within 100-120% of the HVAC Contractor design value. The wording is important, because it's not the Rater's responsibility to determine whether the contractor-reported value is compliant with the ASHRAE 62.2-2010 standard, only that the Rater-measured ventilation rate is within the tolerance of the contractor-reported value. In cases where the Rater is knowledgeable about the ASHRAE standard and believes that the contractor-reported design value is incorrect, the Rater is encouraged to share that observation with the contractor and builder as an educational opportunity.
00144	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 5.1 – Whole-house ventilation rate**
				Issue: Item 5.1 requires that the Rater-measured ventilation rate be within 100-120% of the HVAC contractor design value. Partners have asked if this requirement can be met by installing a bath fan with a controller that is marketed to meet ASHARE 62.2-2010 (e.g., with a setting based on the number of bedrooms in the home and the conditioned floor area of the home).
				Resolution: A bath fan combined with a controller that is set to operate the fan according to the run-time requirements of ASHRAE 62.2-2010 can be used to meet the intent of this Item, as long as the system's ventilation rate is measured by the Rater and verified to be 100-120% of the HVAC contractor design value.
00231	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev.05)**	**Comment**	**Item 5.1 – Rater measured ventilation within 100-120% of HVAC contractor design value**
				Issue: Partners have asked if the Rater-measured ventilation rate must be within 100-120% of the HVAC contractor design value or within 100-120% of the ventilation rate required by ASHRAE 62.2-2010.
				Resolution: Item 5.1 states that the Rater-measured ventilation rate is required to be within 100-120% of the ventilation design value. The Rater is not required to verify that the measured ventilation rate is within 100-120% of the minimum rate required by ASHRAE 62.2-2010, though some Raters may wish to verify this as a value-added service.
00061	**07/25/2011**		**Change**	**Item 6.2 – Guidance on cool air flow test in cold weather**

		HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)		**Issue:** This item requires the Rater to assess whether cool air flow is produced when the cooling cycle is energized. EPA has received feedback that the cool air flow test should not be performed below a certain temperature because of the potential for liquid line slugging.
				Resolution: EPA will add a new footnote that provides an exemption for this test when the outdoor temperature is below a specific threshold to prevent possible equipment damage, as follows: "To prevent potential equipment damage, the Rater shall not conduct this test if the outdoor temperature is ≤ 55°F or, if known, below the manufacturer-recommended minimum operating temperature for the cooling cycle. When this occurs, the Rater shall mark 'N/A' on the checklist for this item."
00062	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 6.5 – Labeling ventilation controls**
				Issue: Partners have expressed confusion about whether Item 6.5, "Ventilation controls labeled, unless function is obvious (e.g., bathroom exhaust fan)", requires or does not require labeling of bathroom exhaust fan controls.
				Resolution: EPA intended this requirement to align with the requirement for labeling ventilation controls in ASHRAE 62.2-2010. EPA will revise the requirement to read as follows: "Function of ventilation controls is obvious (e.g., bathroom exhaust fan) or, if not, controls have been labeled."
00063	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Change**	**Item 7.2 – Air inlet height requirements for North Carolina**
				Issue: Partners in North Carolina have noted that the ventilation air inlet height requirement is significantly greater than historical records of snowfall for this state and would be particularly problematic for homes with HVAC equipment in crawlspaces or basements.
				Resolution: EPA will permit the use of reduced ventilation air inlet heights in North Carolina. The minimum required height in North Carolina for Climate Zone 4 will be reduced from 4 feet to 2 feet and in Climate Zone 5 from 4 feet to 2.5 feet based on historical snowfall data for this state. Note that EPA is evaluating the potential to reduce inlet heights in other regions based upon historical snowfall data.
00430	**05/01/2014**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 7.2 – Reduced ventilation air inlet height requirement in OH and TN**
				Issue: Policy Record Entry 00504 contains the most recent resolution of this issue. This issue (ID 00430) is only being retained to maintain a complete Policy Record. Partners in Ohio and Tennessee have noted that the ventilation air inlet height requirement of 4 ft. is greater than historical record snowfall depths in most of Ohio and Tennessee and have requested that the height be lowered to ease compliance for homes with HVAC equipment in crawlspaces or basements.

				Resolution: Policy Record Entry 00504 contains the most recent resolution of this issue. This issue (ID 00430) is only being retained to maintain a complete Policy Record. Because reliable historical weather data indicates that snow depth in the states of Ohio and Tennessee rarely exceeds a height of 2.5 feet, the minimum height for ventilation air inlets will be reduced to 2.5 feet for Climate Zone 5 and 2 feet for Climate Zone 4 in Ohio and Tennessee. To reflect this change, Footnote 24 will be revised to read: "Homes in NC, OH, and TN are permitted to use a minimum ventilation air inlet height of 2 ft. in Climate Zone 4 and 2.5 ft. in Climate Zone 5. Note that EPA is evaluating the potential to reduce inlet heights in other regions based upon historical snowfall data."
00505	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Item 7.4 – Exhaust vent. system not required to have dedicated source of outdoor air**
				Issue: Partners have asked if Item 7.4, which states that ventilation air must come directly from the outdoors, requires that an exhaust-only ventilation system have a dedicated source of outdoor air.
				Resolution: Though a dedicated source of outdoor air is recommended for all ventilation system types, it is not required for an exhaust-only ventilation system. In alignment with ASHRAE 62.2-2013, only supply and balanced ventilation systems shall be designed and constructed to provide ventilation air directly from the outdoors.
00064	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Section 8 – Requirements for local mechanical exhaust**
				Issue: Partners have expressed confusion about whether Section 8 requires local mechanical exhaust systems to be installed and meet the requirements of Section 8, or if it simply requires that local mechanical exhaust systems, where installed, meet the requirements of Section 8.
				Resolution: EPA will revise the requirements for Section 8 to read as follows: "In each kitchen and bathroom, a system shall be installed that exhausts directly to the outdoors and meets one of the following Rater-measured airflow standards:"
00065	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 8 – Local mechanical exhaust locations**
				Issue: Partners have asked if all kitchen exhaust fans must exhaust to the exterior. Partners have also asked if recirculating (non-vented) above-the-range hood fans meet the intent of the requirements in Section 8.
				Resolution: Each kitchen must have at least one exhaust system that vents to the outdoors. Fans that recirculate air and do not exhaust to the outdoors do not meet the intent of Section 8. For example, a kitchen is permitted to have a recirculating fan above-the-range hood, but to meet the intent of Section 8 the kitchen must also have an exhaust fan (e.g., wall-mounted, ceiling-mounted) that vents directly to the outdoors.
00145	**01/15/2012**		**Comment**	**Section 8 – Whole-house ventilation system location**

		HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)		**Issue:** Partners have asked if a fan in a kitchen or bathroom can be used to meet both the requirement for local mechanical exhaust in Section 8 and the requirement for whole-house ventilation in Section 1 of the HVAC System Quality Installation Contractor Checklist.
				Resolution: Section 1 of the HVAC System Quality Installation Contractor Checklist requires that a whole-house ventilation system that meets ASHRAE 62.2-2010 requirements be installed but does not prescribe a specific system type or location. Therefore, a fan located in a kitchen or bathroom is permitted to provide both local mechanical exhaust and whole-house ventilation if it meets all the requirements of Section 1 of the HVAC System Quality Installation Contractor Checklist and Section 8 of the HVAC System Quality Installation Rater Checklist.
00146	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 8.1 – Local mechanical exhaust rates**
				Issue: Item 8.1 requires that a local mechanical exhaust system be installed in each kitchen that provides either ≥ 5 air changes per hour (ACH) based on kitchen volume, if operating continuously, or ≥ 100 CFM, if operating intermittently. Footnote 28 further clarifies that if the flow rate of an intermittent exhaust fan is less than 5 ACH, based on kitchen volume, then a vented range hood or appliance-range hood combination is required rather than a remote fan that is not integral to the range. Partners have asked how to assess whether an intermittent fan meets the 5 ACH requirement.
				Resolution: The ability of an intermittent fan to meet the 5 ACH requirement is permitted to be assessed using the flow rate that would be produced if the fan was operating continuously for an hour, even if the fan may actually be operated intermittently in the home.
00232	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 8.1 – Intermittent kitchen exhaust fan flow rates**
				Issue: Partners have noted that while Item 8.1 allows any type of intermittent kitchen exhaust fan that provides at least 100 CFM, Footnote 28 includes a more restrictive requirement that if a fan provides less than 5 ACH based on kitchen volume, then it must be a vented range hood or an appliance-range hood combination. Partners have asked that EPA more clearly convey this complex requirement.
				Resolution: To better indicate that there are two performance thresholds that may need to be met, depending on the fan type, the intermittent rate required for Item 8.1 will be revised to read: "≥ 100 CFM and, if not integrated with range, also ≥ 5 ACH based on kitchen volume" Footnote 28 will then be revised to read as follows: "All intermittent kitchen exhaust fans must be capable of exhausting at least 100 CFM. In addition, if the fan is not part of a vented range hood or appliance-range hood combination (i.e., if the fan is not integrated with the range), then it must also be capable of exhausting ≥ 5 ACH, based on the kitchen volume. Also, for intermittent kitchen exhaust fans that are

				integrated with microwaves, a rated air flow rate ≥ 200 CFM may be used in lieu of measuring the actual air flow rate."
00343	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 8.1 – Alternative kitchen exhaust rate for Passive House (PHIUS+) certified homes**
				Issue: Partners have noted the partnership between the Passive House Institute's Passive House (PHIUS) program and DOE's Challenge Home program, and DOE's requirement for a home to be ENERGY STAR certified as a prerequisite to being certified under the Challenge Home program. As a result of these partnerships, PHIUS+ certified homes are also eligible to be ENERGY STAR certified. Information on PHIUS+ certification can be viewed here: http://www.passivehouse.us/passiveHouse/PHIUSServicesPHIUSPlusCertification.html. With that said, PHIUS+ certified homes have a mandatory infiltration limit that is extremely low. For this reason, builders of these homes often use a continuously running balanced ventilation system to meet local mechanical exhaust requirements for kitchens. In such homes, partners have expressed difficulty complying with the ENERGY STAR program's requirement to meet the ASHRAE 62.2 local mechanical exhaust flow rate of 5 kitchen air changes per hour for continuously running fans.
				Resolution: To avoid discouraging participation of PHIUS+ projects in the DOE Challenge Home or ENERGY STAR certified homes program, an alternative kitchen exhaust rate based on the requirements of the 2009 IRC will be permitted to be used for PHIUS+ certified homes. This alternative will remain in effect while DOE works to develop an ASHRAE 62.2-compliant solution optimized for very low-load homes. A new Footnote will be added to Item 8.1 that reads as follows: "As an alternative to Item 8.1, homes that are PHIUS+ certified are permitted to use a continuous kitchen exhaust rate of 25 CFM per 2009 IRC Table M1507.3."
00344	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 8.1 – Alternative compliance options for kitchen exhaust fan airflow rate**
				Issue: Item 8.1 requires, in part, that in each kitchen a system shall be installed that exhausts directly to the outdoors and that the airflow be verified by the Rater. Partners have expressed the following challenges complying with this Item: • Among standalone fans that are not integrated with the range, few models exist that are rated for kitchen use (i.e., to handle grease). Those that are rated for kitchen use do not fit in conventionally framed floors. Fans not rated for kitchen use are not permitted to be installed near the range, creating layout constraints. As a result, partners often need time to make architectural changes that accommodate the addition of kitchen exhaust fans. • Measuring the airflow of a kitchen exhaust fan can be challenging due to the design of the range hood or because it is integrated with a microwave. In some cases, the

				airflow can be measured at the termination of the exhaust duct, but in other cases the termination is not accessible due to height restrictions. Some exhaust fans, particularly those integrated with microwaves, are not rated for air flow, making it difficult to determine during the design phase whether the fan will meet Item 8.1.
				Resolution: In addition to the current compliance option for Item 8.1, which requires the Rater to measure the kitchen exhaust fan airflow and ensure that it meets or exceeds the minimum required flow rate, two compliance options will be added to assist partners. First, the prescriptive duct sizing requirements in Section 5.4 and Table 5.3 of ASHRAE 62.2-2010 will be permitted to be used to comply with Item 8.1. Partners using this compliance option will not be required to measure the exhaust fan airflow rate. Instead, the Rater will verify that the prescriptive duct sizing requirements from ASHRAE 62.2-2010 have been met, as determined by the rated fan airflow, duct type (i.e., flex or smooth), duct diameter, and maximum allowable duct length. Second, though not fully aligned with ASHRAE 62.2-2010, a prescriptive duct sizing requirement will be permitted to be used to comply with Item 8.1 for fans without a rated airflow. However, because the airflow of the fan is not rated, and therefore unknown, more restrictive requirements will be imposed - smooth round duct with a diameter of 6 in. or greater will be required to be used, coupled with a rectangular to round duct transition as needed. Partners using this compliance option will not be required to measure the exhaust fan airflow rate. Instead, the Rater will verify that a smooth round duct with a diameter ≥ 6 in. has been used, with rectangular to round transitions as needed. EPA will provide a one page document that describes this policy in greater detail at www.energystar.gov/newhomesresources. To reflect these changes and to provide sufficient time for partners to comply, a new Footnote will be added to Item 8.1 that reads as follows: "*For homes permitted through 01/01/2014:* Homes are permitted to be certified without enforcement of this Item to provide partners with additional time to integrate this feature into their homes. *For homes permitted on or after 01/01/2014:* Homes shall meet this Item. Alternatively, the prescriptive duct sizing requirements in Table 5.3 of ASHRAE 62.2-2010 are permitted to be used for kitchen exhaust fans based upon the rated airflow of the fan at 0.25 IWC. If the rated airflow is unknown, ≥ 6 in. smooth duct shall be used, with a rectangular to round duct transition as needed. Guidance to assist partners with these alternatives is available at www.energystar.gov/newhomesresources." As a result of these new alternatives, the option for intermittent kitchen exhaust fans that are integrated with microwaves to not be tested for airflow when they have a rated airflow rate ≥ 200 CFM will be removed from Footnote 29.

00233	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 8.2 – Bathrooms with only a sink and toilet are not required to have an exhaust fan**
				Issue: Partners have asked if a local mechanical exhaust fan is required in a bathroom containing only a sink and a toilet.
				Resolution: Footnote 25 states that "Per ASHRAE 62.2-2010, a bathroom is any room containing a bathtub, shower, spa, or similar source of moisture." Sinks and toilets are not considered significant sources of moisture; therefore, bathrooms containing only a sink and a toilet are not required to comply with Item 8.2.
00506	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Item 8.2 – Use of bathroom exhaust fan in water closet**
				Issue: Partners have asked whether a bathroom exhaust fan that is placed in a water closet with a door that is able to be closed meets the intent of this Item, which requires local mechanical exhaust to be provided in each bathroom containing a bathtub, shower, spa, or similar source of moisture.
				Resolution: A bathroom exhaust fan is permitted to be installed in a water closet that is within, or directly connected by a doorway to, the bathroom space containing the bathtub, shower, spa, or similar source of moisture. This is true even if the water closet has a door that can close it off from the rest of the bathroom space. The installation of the bathroom exhaust fan at this location provides the occupant with the option to exhaust moisture from the bathroom. The expectation is that the occupant will choose to leave the door open, allowing the exhaust fan to exhaust the moisture from the space.
00066	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 9 – Static pressure test conditions**
				Issue: Partners have asked whether there are any specific conditions or procedures for static pressure readings in the supply and return ducts.
				Resolution: The HVAC system shall be in operation, and the supply and return duct static pressures shall be measured at the locations noted in Footnote 21. EPA is considering whether to develop a more formal test procedure for this requirement.
00067	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 9.1 – Definition of remote-mounted fans**
				Issue: Partners have asked EPA to clarify whether a remote-mounted fan is exempt from the sound rating requirement based on its location alone or if the fan must also have ≥ 4 ft ductwork between the fan and intake grills.
				Resolution: To improve the clarity of the definition for a remote-mounted fan, the portion of the associated footnote that defines this term will be clarified as follows: "Fans exempted from this requirement include HVAC air handlers and remote-mounted fans. To be considered for this exemption, a remote-mounted fan must be mounted outside the habitable spaces, bathrooms, toilets, and hallways and there shall be ≥ 4 ft. ductwork between the fan and intake

				grill. Per ASHRAE 62.2-2010, habitable spaces are intended for continual human occupancy; such space generally includes areas used for living, sleeping, dining, and cooking but does not generally include bathrooms, toilets, hallways, storage areas, closets, or utility rooms."
00345	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 9.1 – Exemption from kitchen exhaust fan sone rating**
				Issue: Item 9.1 requires, in part, that an intermittent exhaust fan be rated at ≤ 3 sones by the manufacturer when producing no less than the minimum airflow required by Section 8. Partners have reported difficulty finding kitchen exhaust fans that carry sone ratings, particularly for over-the-range exhaust fan units that are integrated with microwaves.
				Resolution: Because the availability of kitchen exhaust fans with sound ratings is still limited, EPA will recommend, but not require, that kitchen exhaust fans meet Item 9.1 for intermittent fans or Item 9.2 for continuous fans. Note that no change is being made to the sound requirements for bath fans or other ventilation or exhaust fans. To reflect this change, the heading of Section 9 will be revised to read: "Ventilation & Exhaust Fan Ratings (Exemptions for Kitchen, HVAC, and Remote-Mounted Fans)." The first sentence of Footnote 31 will be revised to read as follows: "Fans exempted from this requirement include kitchen exhaust fans, HVAC air handler fans, and remote-mounted fans."
00147	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 9.1 & 9.2 – Sound limits for multispeed local mechanical exhaust fans**
				Issue: Partners have asked at which speed fans must meet the sone limits in Items 9.1 and 9.2. Partners have also expressed difficulty finding multispeed ventilation and exhaust fans that meet those limits.
				Resolution: Multispeed fans must meet the sone limits of Items 9.1 or 9.2 when producing no less than the minimum airflow rate required by Section 8. In order to clarify this requirement, Item 9.1 will be revised as follows: "Intermittent supply and exhaust fans rated at ≤ 3 sones by mfr. when producing no less than the minimum airflow rate required by Section 8 of this Checklist, unless rated flow ≥ 400 CFM." Additionally, Item 9.2 will be revised as follows: "Continuous supply & exhaust fans rated at ≤ 1 sone by mfr. when producing no less than the minimum airflow required by Section 8 of this Checklist." All ENERGY STAR qualified bathroom fans (and range hoods) have sound ratings of 3 sones or less and, therefore, may be good candidates to meet Item 9.1. A list of qualified ventilation fans and retail locations has been posted in the "Fans, Ventilating Resources" column at the right of the page at http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=VF, which is also accessible by visiting www.energystar.gov, clicking on "Find ENERGY

				STAR Products" in the "Products" box, and then clicking on "Fans, Ventilating" under the "Heating & Cooling" heading.
00346	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Items 9.1 and 9.2 – Field-measured sone level not allowed in lieu of manufacturer rating**
				Issue: Partners have asked if they are permitted to measure the sone level of installed exhaust fans in the field, in lieu of using manufacturer sone ratings, to meet Item 9.1 and 9.2.
				Resolution: Manufacturer sone ratings are conducted under standardized test conditions that are not easily duplicated in the field. Because of this, field measurements are not permitted to be used in lieu of manufacturer sone ratings to meet Items 9.1 and 9.2.
00507	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Section 10 – Transition to Section 10 of the Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: As part of an overall transition from the HVAC System QI Rater Checklist to the Rater Field Checklist, Section 10, which contains the requirements for combustion appliances, will be moved to Section 10 of the Rater Field Checklist. The Items in this Section will be updated by moving all alternatives to mechanically drafted or direct-vented equipment into the Footnotes; by updating the methodology for combustion safety testing to reflect RESNET's latest standards, where applicable; and by removing the alternative compliance path for fireplaces that is based on a pressure differential. Item 10.1 will read as follows: "Furnaces, boilers, and water heaters located within the home's pressure boundary are mechanically drafted or direct-vented. See Footnote 56 for alternatives." The alternative to mechanically drafted or direct-vented equipment will be contained in Footnote 56 of the Rater Field Checklist, as follows: "Naturally drafted equipment is allowed within the home's pressure boundary in Climate Zones 1-3 if the Rater has followed Section 805 of RESNET's Standards, encompassing ANSI/ACCA 12 QH-2014, Appendix A, Sections A3 (Carbon Monoxide Test) and A4 (Depressurization Test for the Combustion Appliance Zone), and verified that the equipment meets the limits defined within." Item 10.2 will read as follows: "Fireplaces located within the home's pressure boundary are mechanically drafted or direct-vented. See Footnote 57 for alternatives."

				The alternative to mechanically drafted or direct-vented equipment will be contained in Footnote 57 of the Rater Field Checklist, along with the two relevant defintions from ASHRAE 62.2-2010. In addition, the alternative option for the Rater to verify that the pressure differential is ≤ -5 Pa using BPI's or RESNET's worst-case depressurization test procedure will be removed, because there is not a standard procedure for conducting this test for the purpose of assessing fireplaces. Footnote 57 will read as follows: "Naturally drafted fireplaces are allowed within the home's pressure boundary if the Rater has verified that the total net rated exhaust flow of the two largest exhaust fans (excluding summer cooling fans) is ≤ 15 CFM per 100 sq. ft. of occupiable space when at full capacity. If the net exhaust flow exceeds the allowable limit, it shall be reduced or compensating outdoor airflow provided. Per ASHRAE 62.2-2010, the term 'net rated exhaust flow' is defined as flow through an exhaust fan minus the compensating outdoor airflow through any supply fan that is interlocked to the exhaust fan. Per ASHRAE 62.2-2010, the term 'occupiable space' is defined as any enclosed space inside the pressure boundary and intended for human activities, including, but not limited to, all habitable spaces, toilets, closets, halls, storage and utility areas, and laundry areas. See Footnote 43 for the definition of 'habitable spaces'." Item 10.3 will read as follows: "If unvented combustion appliances other than cooking ranges or ovens are located inside the home's pressure boundary, the Rater has followed Section 805 of RESNET's Standards, encompassing ANSI/ACCA 12 QH-2014, Appendix A, Section A3 (Carbon Monoxide Test), and verified the equipment meets the limits defined within"
00068	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 10.1 – Test requirements for naturally drafted combustion appliances**
				Issue: Partners have asked which specific combustion safety tests are required to be performed in homes with a natural draft combustion appliance inside the pressure boundary. Also, EPA has determined that the phrase "atmospherically vented" is better expressed as "natural draft" or "naturally drafted".
				Resolution: For improved clarity, EPA will replace the phrase "atmospherically vented equipment" with the phrase "naturally drafted equipment" and add a definition to Footnote 27, as follows: "Per the 2009 International Mechanical Code, a direct-vent appliance is one that is constructed and installed so that all air for combustion is derived from the outdoor atmosphere and all flue gases are discharged to the outside atmosphere; a mechanical draft system is a venting system designed to remove flue or vent gases by mechanical means consisting of an induced draft portion under non-positive static pressure or a forced draft portion under positive static pressure; and a natural draft system is a venting system designed to remove flue or vent gases under nonpositive static vent pressure entirely by natural draft."

				To clarify the tests required to demonstrate compliance with Item 10.1, this item will be revised as follows: “Furnaces, boilers, and water heaters located within the home’s pressure boundary are mechanically drafted or direct-vented. As an exception, naturally drafted equipment is allowed in Climate Zone 1-3. For naturally drafted furnaces, boilers, and water heaters, the Rater has followed RESNET or BPI combustion safety test procedures and met the selected standard’s limits for depressurization, spillage, draft pressure, and CO concentration in ambient air, as well as a CO concentration in the flue of ≤ 25 ppm.”.
00234	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev.05)**	**Comment**	**Item 10.1 – Options for meeting combustion safety requirement using fuel oil equipment**
				Issue: Partners have asked for guidance on the options available for fuel oil equipment to meet Item 10.1, which generally requires mechanically drafted or direct vented furnaces, boilers, and water heaters to be used if located within the home’s pressure boundary.
				Resolution: Several different options are available to builders who are using fuel oil equipment and builders are free to select the strategy that works best for their circumstances. These options include: 1. Installing a dedicated outdoor air supply directly to the combustion equipment such that it meets the requirement for being direct vented (i.e., all air for combustion is derived from the outdoor atmosphere and all flue gases are discharged to the outside atmosphere), 2. Installing a mechanical drafting adaptor kit to the flue pipe (i.e., a venting system designed to remove flue or vent gases by mechanical means), 3. Installing equipment with integrated direct vent or mechanical drafting features, or Locating the combustion equipment outside the home’s pressure boundary.
00069	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 10.2 – Combustion safety testing for fireplaces**
				Issue: Item 10.2 provides two options for evaluating the likelihood that a fireplace will backdraft in a home. One option is to verify that the total net rated exhaust flow of the two largest fans (excluding summer cooling fans) is ≤ 15 CFM per 100 sq. ft. of occupiable space. The second option is to conduct BPI or RESNET’s combustion safety test procedure and verify that the worst-case depressurization is ≤ 5 Pa. Partners have asked EPA to clarify which specific test procedure is required to demonstrate compliance with the second option. Partners have also asked EPA to clarify if the net change in pressure between the baseline and worst-case depressurization conditions should be expressed as -5 Pa, rather than 5 Pa.
				Resolution: EPA will clarify that the second compliance option for Item 10.2 is to conduct a worst-case depressurization test using the RESNET or BPI combustion safety test procedure. The one modification will be that for the RESNET procedure, the blower door will not be set to exhaust 300 CFM to simulate the fireplace in operation.

				In addition, EPA will clarify that the net change in pressure within the combustion zone between the baseline and worst-case depressurization conditions should not exceed -5 Pa, rather than 5 Pa. Item 10.2 will read as follows: "For fireplaces that are not mechanically drafted or direct-vented to outdoors, total net rated exhaust flow of the two largest exhaust fans (excluding summer cooling fans) is ≤ 15 CFM per 100 sq. ft. of occupiable space when at full capacity or the Rater has verified that the pressure differential is ≤ -5 Pa using BPI's or RESNET's worst-case depressurization test procedure." Footnote 29 will have the following sentence added to the end: "If using RESNET's protocol to evaluate fireplaces, per Item 10.2, the blower door will not be set to exhaust 300 CFM to simulate the fireplace in operation. The remainder of the protocol for determining worst-case depressurization shall be followed."
00148	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 10.2 – Direct-vented appliances**
				Issue: Partners have asked what the definition of a direct-vented appliance is and how to determine if a fireplace is directly vented to the outdoors.
				Resolution: Per the 2009 International Mechanical Code, a direct-vent appliance is one that is constructed and installed so that all air for combustion is derived from the outdoor atmosphere and all flue gases are discharged to the outside atmosphere. A direct-vent fireplace has a fresh air inlet to supply air for combustion and also has a flue that vents combustion gases directly to the outdoors.
00347	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Refinement**	**Item 10.2 – Removal of non-applicable Footnote from this Item**
				Issue: Footnote 33, which provides the definition of a pressure boundary, is only applicable to Item 10.1 but has been referenced in both Item 10.1 and Item 10.2.
				Resolution: To avoid referencing a Footnote that is not applicable, the reference to Footnote 33 will be removed from Item 10.2.
00070	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 10.3 – Ambient CO test procedure for unvented combustion appliances**
				Issue: Item 10.3 requires Raters to conduct BPI or RESNET's combustion safety tests when unvented combustion appliances are present. However, partners have noted that unvented combustion appliances are prohibited in homes by the BPI standards, so there are no combustion safety tests for unvented combustion appliances in the BPI Standards. In addition, Item 10.3 requires that ambient CO levels not exceed 35 ppm. However, ambient CO levels are typically measured and monitored while conducting other combustion safety tests for vented combustion appliances. Partners have indicated that in the case of unvented combustion appliances, the procedure is unclear, particularly how long the unvented appliance should be operated before assessing the ambient CO level.

				Resolution: EPA will explicitly describe the test procedure to be executed for unvented combustion appliances. Item 10.3 will read as follows: "If unvented combustion appliances other than cooking ranges are located inside the home's pressure boundary, the Rater has operated the appliance for at least 10 minutes and verified that the ambient CO level does not exceed 35 ppm."
00348	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 10.3 – Applicability of CO testing to cooking ovens**
				Issue: Partners have asked if cooking ovens are included in the unvented gas appliances that must be tested for CO levels, per Item 10.3.
				Resolution: The intent of Item 10.3 is to ensure that unvented combustion appliances located within the home's pressure boundary can be operated safely, as verified through a combustion safety test. This Item was not intended to include cooking appliances in the kitchen, where local mechanical exhaust is required per Item 8.1 of this Checklist. Therefore, cooking ranges (also known as cooktops and cooking stoves) and ovens are exempted from the requirement to conduct a combustion safety test. To clarify this intent, Item 10.3 will be revised to read: "If unvented combustion appliances other than cooking ranges or ovens are located inside the home's pressure boundary, the Rater has operated the appliance for at least 10 minutes and verified that the ambient CO level does not exceed 35 ppm."
00150	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Rater Company Name field and Date Checklist Inspected field**
				Issue: Partners have asked if the Rater Company Name and the Date Checklist Inspected fields are required to be completed for every home.
				Resolution: The Rater company name and date that the Checklist was inspected must be documented each time the Checklist is filled out.
00508	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Change**	**Sections 11 – Transition to Section 9 of the Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the HVAC System QI Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: As part of an overall transition from the HVAC System QI Rater Checklist to the Rater Field Checklist, Section 11, which contains the requirements for filtration, will be moved to Section 9 of the Rater Field Checklist, with only minor refinements.

00509	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Refinement**	**Footnote 1 - Update to 2015 edition of ANSI / ACCA 5- QI**
				Issue: Partners have requested that references to the ANSI / ACCA 5 – QI standard be updated to the latest edition.
				Resolution: Because the 2015 edition of the ANSI / ACCA 5 – QI standard will be released in the near future, and the latest version available for public comment does not conflict with the current ENERGY STAR program requirements, the reference to ANSI / ACCA 5 QI-2007 in Footnote 1 will be updated to ANSI / ACCA 5 QI-2015.
00510	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Footnote 1 – Checklist designed to meet ASHRAE 62.2**
				Issue: Partners have asked whether the general intent of the program is to require certified homes to meet the requirements of ASHRAE 62.2, or to meet some subset of this standard or an alternative standard to satisfy its requirements for indoor air quality.
				Resolution: While several components of ASHRAE 62.2 may be recommended, rather than required, or not explicitly require Rater verification, the intent of the program is to require certified homes to meet the requirements of ASHRAE 62.2, as opposed to some subset of this standard or an alternative standard. To further clarify this intent, the beginning of Footnote 1 will be revised as follows: “This Checklist is designed to meet the requirements of ASHRAE 62.2…”
00349	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Footnote 1 – Alignment with Indoor airPLUS language**
				Issue: Partners have noted that EPA’s Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. In addition, it now clearly indicates what is required above and beyond ENERGY STAR certification to earn the Indoor airPLUS label. Therefore, the reference to the use of this Checklist as a means to demonstrate compliance with Indoor airPLUS program requirements is no longer appropriate.
				Resolution: Because EPA’s Indoor airPLUS program requires ENERGY STAR Certification and now clearly indicates what is required above and beyond these requirements to earn the Indoor airPLUS label, the following sentence will be removed from Footnote 1: “This Checklist with supporting documents may also be used to demonstrate compliance with Indoor airPLUS specifications 4.1, 4.2, 4.5, 4.6, and 7.1.”
00053	**07/25/2011**	**HVAC System Quality Installation**	**Comment**	**Footnote 1 – Verification requirements for homes with boilers**
				Issue: Partners have asked who should complete this checklist if a home is equipped with a boiler and radiant floor heating.

		Rater Checklist (Version 3, Rev. 03)		**Resolution:** The HVAC System Quality Installation Rater Checklist must be completed by the Rater, but in this case many items will be marked "Not Applicable".
00151	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Refinement**	**Footnote 2 - Rater responsibility**
				Issue: A grammatical error was identified in the text of Footnote 2.
				Resolution: To correct this error and to align with the language used in Footnote 1 of the Contractor Checklist, Footnote 2 will be revised to read: "The Rater is only responsible for ensuring that the Contractor has completed the Contractor Checklist in its entirety and verifying the discrete objective parameters referenced in Section 1 of this Checklist, not for assessing the accuracy of the load calculations or field verifications included or for verifying the accuracy of every input on the Contractor Checklist."
00350	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Footnote 3 – Expiring exemption for deviation from ACCA Manual J design temperatures**
				Issue: Partners have noted that Footnote 3 contains an exemption allowing up to a 5 degree deviation from ACCA Manual J design temperatures that only applied to homes with a final inspection through 12/31/2012. In addition, partners have noted that some of the guidance in this exemption, related to house plans with multiple configurations, is still applicable.
				Resolution: Because the exemption allowing up to a 5 degree deviation from ACCA Manual J design temperatures is not applicable to any home with a final inspection date on or after 01/01/2013, this exemption will be removed from Footnote 3. The remaining guidance related to design temperatures will be moved to Footnote 4, which already discusses the design location. The guidance related to house plans with multiple configurations is still applicable and will be retained in Footnote 3. Footnote 3 will be revised as follows: "For each house plan with multiple configurations (e.g., orientations, elevations, options), the Rater shall confirm that the parameters listed in Items 1.2.2 to 1.2.6 are aligned with either: the rated home or with the plans for the configuration used to calculate the loads, as provided by the contractor."
00351	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Refinement**	**Footnote 14 – Expiring exemption for homes that don't meet pressure balancing req.**
				Issue: Partners have noted that Footnote 14 contains an exemption allowing homes to be certified without meeting the bedroom pressure-balancing requirements of Item 2.8, which only applied to homes with a final inspection through 12/31/2012.
				Resolution: Because the exemption allowing homes to be certified without meeting the bedroom pressure-balancing requirements of Item 2.8 is not applicable to any home with a final inspection date on or after 01/01/2013, this exemption will be removed and Footnote 14 will be deleted.
00235	**09/10/2012**		**Comment**	**Footnote 17 – No exemption provided for total duct leakage test**

		HVAC System Quality Installation Rater Checklist (Version 3, Rev.05)		**Issue:** Partners have asked if all duct testing is waived in homes where the ducts & air handling equipment are located within the home's air and thermal barriers and the 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 built.
				Resolution: Footnote 17 states that "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." Therefore, if the conditions listed in Footnote 17 are met, testing *duct leakage to the outside* is permitted to be waived. However, testing *total duct leakage* is a mandatory requirement for ENERGY STAR certified homes, regardless of the home's envelope leakage or ducts & air handling equipment location.
00352	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Refinement**	**Footnote 18 - Inconsistency in alternative duct leakage allowance for small homes**
				Issue: Partners have note that Footnote 18 provides an alternative duct leakage allowance for homes ≤ 1,200 sq. ft. However, the last sentence of this Footnote inadvertently indicates that this allowance only applies to homes "less than 1,200 sq. ft."
				Resolution: To be consistent, and avoid the exclusion of homes that are equal to 1,200 sq. ft. from this alternative duct leakage allowance, the last sentence of Footnote 18 will be revised as follows: "Alternatively, testing of duct leakage to the outside can be waived 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 ≤ 1,200 sq. ft. of conditioned floor area."
00511	**07/01/2015**	**Water Management System Builder Checklist (Version 3, Rev. 07)**	**Change**	**Transition to Water Management System Builder Requirements**
				Issue: Partners have provided consistent feedback that the amount of paperwork required to certify a home should be minimized wherever possible. In the case of the Water Management System Builder Checklist, partners have suggested that while the requirements contained in this document are valuable in and of themselves, the effort of having the builder actually complete the checkboxes and transfer the document to the Rater for every home outweighs the value.
				Resolution: As part of a larger effort to reduce the amount of paperwork required to certify a home, the Water Management System Builder Checklist will be repurposed as the Water Management System Builder Requirements. While builders will not be required to maintain documentation demonstrating compliance for each individual certified home, builders will be required to develop a process to ensure compliance for each certified home (e.g., incorporate these requirements into the Scope of Work for relevant sub-contractors, require the site

				supervisor to inspect each home for these requirements, and / or sub-contract the verification of these requirements to a Rater). Furthermore, in the event that EPA determines that a certified home was constructed without meeting these requirements, the home may be decertified. As a result of this repurposing, all four columns of checkboxes will be removed. Footnote 2, which describes the use of the checkboxes and process for Rater verification of the checklist, will be deleted. Because builders will no longer be required to maintain per-home documentation, the home address block at the top of the checklist will be removed. For this same reason, the builder employee name and signature and Rater signature fields will be removed. To explain the repurposing of this Checklist, a new box will be added above Section 1 that reads as follows: "Builder Responsibilities: • It is the exclusive responsibility of builders to ensure that each certified home is constructed to meet these requirements. • While builders are not required to maintain documentation demonstrating compliance for each individual certified home, builders are required to develop a process to ensure compliance for each certified home (e.g., incorporate these requirements into the Scope of Work for relevant sub-contractors, require the site supervisor to inspect each home for these requirements, and/or sub-contract the verification of these requirements to the Rater). In the event that the EPA determines that a certified home was constructed without meeting these requirements, the home may be decertified."
00152	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Comment**	**Use of "Must Correct" column**
				Issue: Partners have asked when an item should be designated as "Must Correct".
				Resolution: An item must be marked as "Must Correct" when it has been inspected and does not meet the intent of that item.
00157	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Refinement**	**Footnote 2 - Rater verification of Checklist**
				Issue: Partners have asked EPA to clarify language related to Raters' responsibilities when verifying the Water Management System Builder Checklist.
				Resolution: To better convey the policy intent and align with the language used elsewhere related to Raters' responsibilities, Footnote 2 will be revised to read: "Upon completion, the builder shall return the Checklist to the Rater for review. Alternatively, at the discretion of the builder and Rater, the Rater may verify any item on this Checklist. When this occurs, the Rater shall check the box of the verified items in the Rater Verified column. The Rater is only

				responsible for ensuring that the builder has completed the Builder Checklist in its entirety and for verifying the items that are checked in the Rater Verified column (if any). The Rater is not responsible for assessing the accuracy of the field verifications for items in this Checklist that are not checked in the Rater Verified column. Instead, it is the builder's exclusive responsibility to ensure the design and installation comply with the Builder Checklist."
00353	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Comment**	**Item 1.1 – Balconies are recommended, but not required, to be sloped**
				Issue: Partners have asked if balconies are required to comply with the sloping requirements of Item 1.1
				Resolution: Item 1.1 requires that "patio slabs, porch slabs, walks, and driveways" be sloped away from the home. Because balconies are not included in this list, they are not required to meet this requirement. While not required, EPA does recommend sloping balconies away from the home, where possible, to improve the durability of the dwelling.
00287	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 1.1 & Item 1.2, Footnote 4 - Use of swales and drains**
				Issue: Footnote 4 requires homes to use swales or drains to remove water from the site where setbacks limit space to less than 10 feet. Partners have asked if the same alternative is permitted to be used even if space is not limited by setbacks.
				Resolution: Drains and swales are an acceptable alternative to proper site sloping regardless of whether setbacks limit space to less than 10 ft. To clarify this intent, Footnote 4 will be revised as follows: "Swales or drains designed to carry water from foundation are permitted to be provided as an alternative to the slope requirements for any home, and shall be provided for a home where setbacks limit space to less than 10 ft.…"
00071	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Comment**	**Footnote 4, 5, and 11 – Site-level versus community-level soil reports**
				Issue: Partners have asked if soil reports performed for the Water Management System Builder Checklist are valid for a single home or an entire community.
				Resolution: The certified hydrologist, soil scientist, or engineer should be the one to determine whether their evaluation is applicable to a single site or to an entire community. Ultimately, the reported soil conditions must be valid for each home qualified. For example, if the soil expert determines that he/she can evaluate the soil conditions across multiple lots in one visit, then only a single assessment will be needed. Conversely, if the soil expert determines that he/she can only assess the soil conditions for a single lot at a time, then multiple assessments will be needed.
00072	**07/25/2011**		**Change**	**Item 1.2 – Alternative to Tamping Back-Fill**

		Water Management System Builder Checklist (Version 3, Rev. 03)		**Issue:** Some partners have indicated that rather than tamping back-fill to prevent settling, they schedule a site visit after the close of the home to evaluate settling conditions, provide in-fill as needed, and complete final grading. They have requested that EPA permit this process be used to satisfy the intent of Item 1.2.
				Resolution: EPA will permit this process to be used to meet the intent of Item 1.2. Item 1.2 will be revised as follows: "Back-fill has been tamped and final grade sloped ≥ 0.5 in. per ft. away from home for ≥ 10 ft. See footnote for alternatives." The accompanying footnote will be revised as follows: "Where setbacks limit space to less than 10 ft., swales or drains designed to carry water from foundation shall be provided. Also, tamping of back-fill is not required if either: proper drainage can be achieved using non-settling compact soils, as determined by a certified hydrologist, soil scientist, or engineer; OR, the builder has scheduled a site visit to provide in-fill and final grading after settling has occurred (e.g., after the first rainy season)."
00073	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Change**	**Item 1.3 – Drainage layer under slabs**
				Issue: Several builders have expressed dissatisfaction with Item 1.3. Specifically, some builders are reluctant to install the layer of aggregate or sand with geotextile matting because they claim it adds additional cost to the home without providing any benefit. Separately, partners have offered the feedback that radon mitigation systems that do not include polyethylene sheeting can be effective, but that EPA's requirement for polyethylene sheeting would prevent homes with such systems from qualifying.
				Resolution: The primary purpose of the layer of aggregate or sand with geotextile matting is to protect the slab from frost heave, which can occur when water freezes in the soil beneath the slab and expands. However, there is no definitive language in the Residential Building Code that requires a drainage layer beneath all slabs. Furthermore, there are many alternative building practices employed around the country that do not rely on a drainage layer. Therefore, EPA will remove the explicit requirement for a layer of aggregate or sand with geotextile matting. The layer of polyethylene sheeting remains a mandatory requirement, except in dry climates where water intrusion to the slab is not a major concern, because it provides a capillary break beneath the slab. To accommodate more diverse building practices, Item 1.3 will be revised to read as follows: "Capillary break beneath all slabs (e.g., slab on grade, basement slab) except crawlspace slabs using ≥ 6 mil polyethylene sheeting lapped 6-12 in. or ≥ 1" extruded polystyrene insulation with taped joints.[5]" Additionally, Footnote 5 will be revised to read:

				"5. Polyethylene sheeting is not required in Dry (B) climates as shown in 2009 IECC Figure 301.1 and Table 301.1. Polyethylene sheeting is also not required for raised pier foundations with no walls. To earn the ENERGY STAR, EPA recommends, but does not require, that radon-resistant features be included in homes built in EPA Radon Zones 1, 2 and 3. For more information, see www.epa.gov/indoorairplus."
00153	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Comment**	**Item 1.3 – Capillary break beneath slabs for gut rehabs**
				Issue: Partners have asked if gut rehab projects can meet the intent of Item 1.3, which requires a capillary break beneath all slabs except for crawlspace slabs, by installing a vapor barrier on top of a slab.
				Resolution: Historically, EPA has allowed existing homes to earn the ENERGY STAR if all requirements of the guidelines have been met. This policy has not changed, though EPA does recognize that it will be more challenging for existing homes to meet all requirements of the guidelines under Version 3 of the program. In the future, EPA may identify the most challenging items and develop alternate details that meet the same intent, thereby allowing existing homes to more easily qualify. With regards to Item 1.3, one alternate that may be used to meet the intent of this item is to construct a rat slab. This building technique calls for the builder to install a layer of polyethylene sheeting on top of an existing slab and then to pour a thin slab that is approximately 2 inches thick over the polyethylene sheeting. This secondary rat slab improves foundation assembly durability by providing a capillary break and protecting the polyethylene sheeting from tearing. For more information about rat slabs, please refer to guidance provided on EPA's Indoor airPLUS website at the following link: http://www.epa.gov/indoorairplus/technical/moisture/1_2.html.
00288	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Item 1.3 and 1.4 - Capillary break beneath existing slabs**
				Issue: Partners certifying existing homes have expressed concern that it is not feasible to remove slabs to place a capillary break beneath, even for a gut rehabilitation
				Resolution: The capillary break beneath a slab prevents water from wicking up from the ground below. To meet the intent of this requirement, existing homes will be permitted to install a sealed and continuous capillary break above the slab that is either a Class I or Class II Vapor Retarder. Some methods for achieving this intent include: • Applying a permanent and protected Class 1 Vapor Retarder that provides drainage space (e.g.an air gap membrane); OR • Applying a permanent and protected layer of extruded polystyrene insulation with taped joints or equivalent Class II Vapor Retarder system; OR • Applying a surface-applied crystalline water-proofing treatment: OR • Applying an epoxy that is a Class I Vapor Retarder.

				To prevent wear and tear in the capillary break over time, in occupiable spaces this capillary break must be durable to withstand occupant use or be protected with a durable floor surface. To prevent damage from moisture in the slab, Class I Vapor Retarders are not permitted to be installed on the interior side of air permeable insulation or other materials that are prone to moisture damage. A new Footnote will be added to this Item that reads as follows: "For an existing slab (e.g., in a home undergoing a gut rehabilitation), in lieu of a capillary break beneath the slab, a continuous and sealed Class I or Class II Vapor Retarder (per Footnote 6) is permitted to be installed on top of the entire slab. In such cases, up to 10% of the slab surface is permitted to be exempted from this requirement (e.g., for sill plates). In addition, for existing slabs in occupiable space, the Vapor Retarder shall be, or shall be protected by, a durable floor surface. If Class I Vapor Retarders are installed, they shall not be installed on the interior side of air permeable insulation or materials prone to moisture damage."
00607	**02/23/2017**	**Water Management System Builder Requirements (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Item 1.3 – Capillary Break & Footers**
				Issue: Partners have asked whether the requirement to include a capillary break beneath a slab also requires that the capillary break encompass its footers. As written, the Item does not specify whether the capillary break is permitted to be terminated at the slab edge, or if it must be extended either under and around the footer or on top of the footer.
				Resolution: Ensuring that the capillary break extends either under and around the footer or on top of the footer will improve the water management system of the home. However, because the Item is ambiguous as to whether this is currently required, it will remain a recommendation, rather than a requirement, at this time. The possibility of requiring this detail will be considered when the next Version of the program requirements is developed.
00289	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Comment**	**Item 1.4.1 - Location of capillary break**
				Issue: Partners have asked if Item 1.4.1 only allows a capillary break to be placed under a structural slab or if a capillary break is permitted to be placed beneath a non-structural "rat slab" in a crawlspace to meet the intent of this Item.
				Resolution: A capillary break may be placed under any slab, even non-structural "rat slabs."
00074	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Comment**	**Item 1.4.2 – Fastening options for polyethylene sheeting on crawlspace floors**
				Issue: Partners have asked whether polyethylene sheeting on the floor of a crawlspace is required to be sealed at the edges with tape or mastic.
				Resolution: The polyethylene sheeting installed on the crawlspace floor is not required to be sealed with tape or mastic at the edges. However, the sheeting is required to be lapped 6-12

				inches in addition to being either lapped up each wall enough to be fastened or secured in the ground at the perimeter using stakes.
00236	**09/10/2012**	**Water Management System Builder Checklist (Version 3, Rev. 5)**	**Comment**	**Item 1.5 – Alternatives to foundation damproofing**
				Issue: Partners have asked whether sheet drains (e.g., DELTA DRAIN) can be used to meet the intent of Item 1.5. As defined by ICC-ES AC 243, Acceptance Criteria for Composite Foundation Drainage Systems, a "sheet drain" is a type of composite foundation drainage system (i.e., a prefabricated geocomposite drain) with a standard 4-foot width that is installed as sheets over the entire face of a foundation wall. The sheet drains must be interconnected with soil strip drains to provide a continuous water flow that discharges into an approved drainage system.
				Resolution: Sheet drains and, more generally, composite foundation drainage systems, are primarily intended to provide foundation drainage, not foundation dampproofing. For example, the installation instructions for DELTA DRAIN do not say that the product can be used in place of dampproofing and instead note that, "It is typically used in conjunction with liquid or sheet-applied waterproofing." Sheet drains and, more generally, composite foundation drainage systems shall not be used to meet the intent of Item 1.5.
00354	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 1.5 – Applicability to slabs on grade and vented crawlspace foundations**
				Issue: Partners have asked if Item 1.5 is applicable to stem walls that support slabs on grade. Additionally, partners have asked if below-grade walls of vented crawlspaces must meet the requirements of Item 1.5.
				Resolution: Item 1.5 is intended to prevent the intrusion of moisture from the soil through the below-grade wall and into adjacent space in the house. Therefore, Item 1.5 is not required for stem walls supporting slabs on grade, nor is it required for below-grade walls of vented crawlspaces. This is because there is no space in the house adjacent to these below-grade walls. To clarify this intent, Item 1.5 will be revised to read: "Exterior surface of below-grade walls of basements & unvented crawlspaces finished as follows…"
00290	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Item 1.5 - Finishing of exterior surface of existing below-grade walls**
				Issue: Partners certifying existing homes have expressed concern that the exterior surface of foundation walls are already below grade and that it will not be feasible to excavate around the home, clean the walls, apply the exterior coating, and back-fill the excavated areas.
				Resolution: The intent of this Item is to protect the home from damage caused by moisture in the ground. Water has the potential to migrate through below-grade walls and create durability problems in the wall assembly and reduce indoor air quality in the home. For foundation walls

				not framed with wood, existing home projects can meet this same intent by managing the water that comes through the walls with an interior drainage system. Note that when an uneven fieldstone or granite stone foundation exists, care must be taken to specify construction details and materials that insure an effective installation of drainage planes and capillary breaks against these uneven wall surfaces. For homes in soils that require a foundation drain, a system comprised of a drainage plane, capillary break, Class I Vapor Retarder, and air barrier that leads into the foundation drainage system is required. This system will allow water vapor and liquid to come through the wall and be directed into the drain, but otherwise block the water vapor and liquid from migrating into the basement space or crawlspace. This is permitted to be met with one or more materials such as the combination of spacer mesh and sealed foil-faced polyisocyanurate foam or a fully-sealed air gap membrane. For homes in soils that don't require a foundation drain, a continuous capillary break and Class I Vapor Retarder adhered directly to the wall is required. This system will block the water vapor and liquid at the surface of the wall. To simplify the ability to reference the damp-proofing and waterproofing requirements for various wall types, the bullets in Item 1.5 will be revised to "a)" and "b)". To ensure that a damp-proof coating is applied to all masonry and concrete wall types and not just a subset of specified wall types, Item 1.5a will be revised as follows: "For masonry and concrete walls (e.g., poured concrete, concrete masonry units, insulated concrete forms) finish with damp-proofing coating." To clarify this alternative compliance pathway for existing homes, a Footnote will be added to Item 1.5a that reads as follows: "The interior surface of existing below-grade walls (e.g., in a home undergoing a gut rehabilitation) listed in Item 1.5a are permitted to be finished as follows: • Install a continuous and sealed drainage plane, capillary break, Class I Vapor Retarder (per Footnote 6) and air barrier that terminates into a foundation drainage system as specified in Item 1.8; OR • If a drain tile is not required as specified in Footnote 7, adhere a capillary break and Class I Vapor Retarder (per Footnote 6) directly to the wall with the edges taped/sealed to make it continuous. Note that no alternative compliance option is provided for existing below-grade wood-framed walls."
00512	**07/01/2015**		**Change**	**Item 1.8 – Use of interior drain tiles**

		Water Management System Builder Checklist (Version 3, Rev. 07)		**Issue:** Partners have requested that a drain tile be permitted to be installed at the interior side of footings of basement and crawlspace walls. Currently Item 1.8 requires that for a new home, a drain tile used to meet this Item be installed at the exterior side.
				Resolution: A drain tile used to meet Item 1.8 will be permitted to be installed on the interior or exterior side of footings of basement and crawlspace walls. However, a drain tile installed on the interior side of footings in a new home must include a channel to allow movement of water from the exterior side of the footing to the interior drain (e.g., a lateral drain, a void form, an interrupted footing). To reflect this change, Item 1.8 will be revised as follows: "Drain tile installed at basement & crawlspace walls, with the top of the drain tile pipe below the bottom of the concrete slab or crawlspace floor. Drain tile surrounded with ≥ 6 in. of ½ to ¾ in. washed or clean gravel and with gravel layer fully wrapped with fabric cloth. Drain tile level or sloped to discharge to outside grade (daylight) or to a sump pump. If drain tile is on interior side of footing, then channel provided through footing to exterior side." To better clarify the use of interior drain tiles in existing homes, the relevant sentence from Footnote 9 will be revised as follows: "In an existing home (e.g., in a home undergoing a gut rehab), a drain tile installed only on the interior side of the footing without a channel is permitted."
00237	**09/10/2012**	**Water Management System Builder Checklist (Version 3, Rev. 5)**	**Clarification**	**Item 1.8 – Alternative to using a drain tile with fabric filter**
				Issue: Partners have asked if sheet drains may be used to meet the intent of Item 1.8. As defined by ICC-ES AC 243, Acceptance Criteria for Composite Foundation Drainage Systems, a sheet drain is a type of composite foundation drainage system (i.e., a prefabricated geocomposite drain) with a standard 4-foot width that is installed as sheets over the entire face of a foundation wall. The sheet drains must be interconnected with soil strip drains to provide a continuous water flow that discharges into an approved drainage system. Partners have also noted that several requirements of Item 1.8 are only contained in the associated Footnote, Footnote 7, and should be relocated into the Checklist Item to avoid the potential for these requirements to be overlooked.
				Resolution: Composite Foundation Drainage Systems (CFDS), including soil strip drains and sheet drains connected to soil strip drains, that have been evaluated by ICC-ES according to AC 243 are permitted to be used to meet the intent of Item 1.8. Note that sheet drains must be integrated with soil strip drains or another ICC-ES evaluated perimeter drainage system to be eligible for use. Sheet drains by themselves do not fulfill the criteria of AC 243 and cannot be used to meet the intent of Item 1.8. To reflect this intent and to clarify the program requirements, Item 1.8 will be revised as follows:

				"Drain tile installed at the footings of basement and crawlspace walls, with the top of the drain tile pipe below the bottom of the concrete slab or crawlspace floor. Drain tile surrounded with ≥ 6 in. of ½ to ¾ in. washed or clean gravel and with gravel layer fully wrapped with fabric cloth. Drain tile level or sloped to discharge to outside grade (daylight) or to a sump pump." Footnote 7 will be revised as follows: "Alternatively, either a drain tile that is pre-wrapped with a fabric filter or a Composite Foundation Drainage System (CFDS) that has been evaluated by ICC-ES according to AC 243 are permitted to be used to meet this Item. Note that the CFDS must include a soil strip drain or another ICC-ES evaluated perimeter drainage system to be eligible for use."
00238	**09/10/2012**	**Water Management System Builder Checklist (Version 3, Rev. 5)**	**Change**	**Item 1.8 – Foundation drainage exemption**
				Issue: Partners have asked EPA to clarify whether Item 1.8 applies to crawlspace foundations in areas with Group I (i.e., free-draining) soils. They have noted that Group I soils can effectively drain water away from the footings of foundation walls, thereby meeting the same intent as the installation of a drain tile. Furthermore, they note that Section R405 of the 2009 IRC recognizes this alternative, stating that "A drainage system is not required when the foundation is installed on well-drained ground or sand-gravel mixture soils according to the Unified Soil Classification System, Group I Soils, as detailed in Table R405.1."
				Resolution: The intent of Item 1.8 is to ensure water is transported away from the footings of foundation walls. Crawlspace foundations installed in Group I soils will meet this same intent without the installation of a drain tile. Therefore, an exemption to Item 1.8 will be added to the end of Footnote 7, as follows: "Additionally, a drain tile is not required when a certified hydrologist, soil scientist, or engineer has determined that a crawlspace foundation is installed in Group I Soils (i.e. well-drained ground or sand-gravel mixture soils), as defined by 2009 IRC Table R405.1."
00291	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Item 1.8 – Required location of drain tile and applicability to existing homes**
				Issue: Partners certifying new homes have asked if a drain tile installed on the interior side of footings would meet the intent of this Item. Additionally, partners certifying existing homes have expressed concern that compliance with this Item would require excavation around the foundation and is not feasible.
				Resolution: The intent of this Item is to prevent water from collecting at the bottom of foundation walls. The accumulation of water increases hydrostatic pressure and accumulation is likely to increase with increasing depth below grade. As hydrostatic pressure increases, an increased force is applied to the foundation, which could lead to damage or to moisture migration through the wall. Drain tile, or an equivalent system, is required to be installed to transport water away from the foundation, thereby minimizing accumulation and hydrostatic pressure.

				In new construction, installation of the drain tile on the exterior is anticipated to be no more difficult than on the interior. Because of this and the fact that the exterior location is ideal, the drain tile is required to be installed on the exterior in new construction. Exceeding these minimum requirements by including a drain tile at both the exterior and interior of the footing would also be permitted. In existing homes (e.g., undergoing a gut rehabilitation), installation on the interior is generally less costly, while still providing substantively equivalent performance when coupled with a continuous and sealed drainage plane, capillary break, Class I Vapor Retarder, and air barrier that terminates into the foundation drainage system. In addition, existing homes with a basement foundation installed in Group 1 soils are exempt from installing this Item. To clarify that new homes are required to have a drain tile on the exterior side of footings, the beginning of Item 1.8 will be revised as follows: "Drain tile installed at the exterior side of footings of basement and crawlspace walls…" To clarify that a drainage system is permitted to be installed on the interior side of existing footings (e.g., in homes undergoing a gut rehabilitation), the end of Footnote 7 will be revised as follows: "In an existing home (e.g, in a home undergoing a gut rehabilitation) the installation of a drain tile that is only on the interior side of the footings is permitted. Additionally, a drain tile is not required when a certified hydrologist, soil scientist, or engineer has determined that a crawlspace foundation, or an existing basement foundation (e.g., in a home undergoing a gut rehabilitation), is installed in Group I Soils (i.e. well-drained ground or sand-gravel mixture soils), as defined by 2009 IRC Table R405.1."
00075	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Comment**	**Item 2.1 – Flashing at bottom of exterior walls**
				Issue: Partners have expressed concern about the difficulty of including flashing at the bottom of wood-framed walls over crawl spaces and slabs where the vinyl siding hangs below the bottom plate and sheathing.
				Resolution: This is a mandatory requirement for all ENERGY STAR homes and cannot be waived, but it can be met through an "equivalent drainage system." If builders have questions about whether a specific wall assembly meets this requirement, they should submit a brief description of such a system and supporting pictures or drawings to energystarhomes@energystar.gov.
00355	**06/01/2013**	**Water Management System Builder**	**Comment**	**Item 2.1 – Length of flashing**
				Issue: Partners have asked if the flashing at the bottom of exterior walls must extend a specific length below the intersection of the exterior wall and foundation.

		Checklist (Version 3, Rev. 06)		**Resolution:** There is currently no requirement that the flashing at the bottom of exterior walls must extend a specific length below the intersection of the exterior wall and foundation. The intent of the flashing is to direct water from the drainage plane away from this intersection, thereby reducing the risk for water intrusion at this location.
00292	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Item 2.1 & Item 2.2 - Flashing and drainage plane for existing structural masonry walls**
				Issue: Partners certifying existing homes have noted that the installation of flashing (and the associated drainage plane) at the bottom of exterior structural masonry walls is generally unfeasible and unnecessary.
				Resolution: EPA agrees that integrating a drainage plane and flashing at the bottom of structural masonry wall assemblies is not typically feasible or necessary. While the exterior surface of the masonry wall serves as a less effective drainage plane than in modern wall assemblies, this is counterbalanced by the masonry's increased moisture storage capacity, which allows water to be retained without damage to the building until drying occurs. The addition of insulation to a masonry wall will alter this balance and must be carefully assessed. However, research indicates that in many cases, this balance can be achieved, avoiding the need to incorporate an interior drainage plane, flashing at the bottom of the drainage plane, and the addition of weep holes through the masonry. Partners are encouraged to read Building America's "Measure Guideline: Internal Insulation of Masonry Walls" by J.F. Straube, K. Ueno, and C.J. Schumacher of Building Science Corporation. Note that a drainage plane with flashing is required for a wall assembly with a masonry veneer. A new Footnote will be added to Item 2.1 and Item 2.2 as follows: "These Items not required for existing structural masonry walls (e.g., in a home undergoing a gut rehabilitation). Note this exemption does not extend to existing wall assemblies with masonry veneers."
00293	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Refinement**	**Item 2.2 and Footnote 8– Drainage plane: alignment with Indoor airPLUS language**
				Issue: The Water Management System Builder Checklist is designed to align with EPA's Indoor airPLUS (IAP) program. However, there is a slight disconnect between Item 2.2 and Footnote 8 of the ENERGY STAR Certified Homes program and the IAP program.
				Resolution: To ensure that this checklist aligns with the guidance in IAP, the phrase "and fully sealed at all penetrations" will be added to Item 2.2 as follows: "Fully sealed continuous drainage plane behind exterior cladding that laps over flashing in Item 2.1 and fully sealed at all penetrations. Additional bond-break drainage plane layer provided behind all stucco and non-structural masonry cladding wall assemblies." Additionally, the phrase "shingled at horizontal joints and " will be added to Footnote 8 as follows:

				"Any of the following systems may be used: a monolithic weather-resistant barrier (i.e., house wrap) shingled at horizontal joints and sealed or taped at all joints; weather resistant sheathings (e.g., faced rigid insulation) fully taped at all "butt" joints; lapped shingle-style building paper or felts; or other water-resistive barrier recognized by ICC-ES or other accredited agency."
00076	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Comment**	**Item 2.3 – Flexible flashing products**
				Issue: Partners have asked if flexible pan flashing products may be used to meet Item 2.3 or if rigid products are required.
				Resolution: Item 2.3 does not specify whether pan flashing must be flexible or rigid. As long as a material is water impermeable, attaches durably to the frame, and can be integrated with other materials to create a continuous drainage plane, it meets the intent of Item 2.3.
00077	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 2.3 – Window and door openings fully flashed**
				Issue: Partners have asked if the American Architectural Manufacturers Association's (AAMA) Standard Practice for Installation of Windows with a Mounting Flange in Stud Frame Construction fulfills the requirements of Item 2.3. Partners have also asked whether pan flashing is required to extend up onto the side jambs.
				Resolution: In homes where water penetrates the window assembly, it will drain to the lowest point, which is the sill framing member. Item 2.3 is intended to help minimize the potential for water damage by fully flashing the windows. This includes applying the pan flashing over the rough sill framing, inclusive of the corners of the sill framing. Therefore, the AAMA Standard Practice document does not meet the intent of Item 2.3. This is because the document does not require the pan flashing to be applied over the rough sill framing. To clarify the intent of Item 2.3, the accompanying footnote will be revised as follows: "Apply pan flashing over the rough sill framing, inclusive of the corners of the sill framing; side flashing that extends over pan flashing; and top flashing that extends over side flashing."
00294	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Refinement**	**Item 2.3 - Flashing around window and door openings for structural masonry walls**
				Issue: Partners have requested that details be provided to clarify the flashing requirements for windows and doors in structural masonry walls.
				Resolution: A variety of details can be employed to effectively flash windows and doors in structural masonry walls, including the use of flexible self-adhering flashing. Partners are encouraged to read Building America's "Measure Guideline: Internal Insulation of Masonry Walls" by J.F. Straube, K. Ueno, and C.J. Schumacher of Building Science Corporation for an overview of such details.

				To provide greater flexibility to select appropriate details for flashing of windows and doors in structural masonry walls that meet the same intent as the current Checklist Item, the following phrase will be added to the end of Footnote 9: "…or equivalent details for structural masonry walls."
00608	**02/23/2017**	**Water Management System Builder Requirements (Version 3 / 3.1, Rev. 08)**	**Clarification**	**Item 2.3 – Flashing details for structural concrete**
				Issue: Partners have asked whether the allowance in Footnote 11 to use "equivalent flashing details for structural masonry walls" also applies to structural concrete walls. While not explicitly referenced in Footnote 11, structural concrete walls often use water management system details that are more similar to structural masonry walls than the traditional flashing details used in wood or steel framed construction.
				Resolution: Structural concrete walls will be permitted to use alternate details that are equivalent to the default window and door opening flashing details, just as structural masonry walls are permitted to. To reflect this change, Footnote 11 will be revised to read, "Apply pan flashing over the rough sill framing, inclusive of the corners of the sill framing; side flashing that extends over pan flashing; and top flashing that extends over side flashing or equivalent details for structural masonry or structural concrete walls."
00295	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Refinement**	**Item 3.1 – Step and kick-out flashing: alignment with Indoor airPLUS language**
				Issue: The Water Management System Builder Checklist is designed to align with EPA's Indoor airPLUS (IAP) program. However, there is a slight disconnect between Item 3.1 of the ENERGY STAR Certified Homes program and the IAP program.
				Resolution: To ensure that this checklist aligns with the guidance in IAP, the phrases "shingle-style" and "boot / collar flashing at all roof penetrations" will be added to Item 3.1 as follows: "Step and kick-out flashing at all roof-wall intersections, extending ≥ 4" on wall surface above roof deck and integrated shingle-style with drainage plane above; boot / collar flashing at all roof penetrations."
00078	**09/23/2013**	**Water Management System Builder Checklist (Version 3, Rev. 07)**	**Comment**	**Item 3.2 – Gutters and downspouts**
				Issue: Partners have requested that EPA allow alternatives to gutters and downspouts where a complete drainage system consistent with the International Residential Code (e.g., sloped sod with sand and swales) has been provided.
				Resolution: Since the time that this request was made, EPA has provided several specific alternatives and exemptions to gutters and downspouts. For this reason, these specific alternatives and exemptions shall be used to demonstrate compliance with Item 3.2. If partners have additional specific alternatives that they believe should be considered, then they should be submitted for review.

				Note that homes that are exempted from the requirements of Item 3.2 include homes with a slab-on-grade foundation, homes that have expansive or collapsible soils, and homes in Dry climates as shown in in 2009 IECC Figure 301.1. Additionally, several alternatives to Item 3.2 are listed in Footnote 14.
00420	**07/23/2013**	**Water Management System Builder Checklist (Version 3, Rev. 07)**	**Change**	**Item 3.2 – Additional alternative to gutters & downspouts**
				Issue: Partners have expressed interest in additional alternatives to Item 3.2 and have proposed an underground flashing system where the water is directed at least five feet away from the foundation through the use of an impervious material below grade that slopes away from the building.
				Resolution: EPA agrees that a below-grade rubber membrane that slopes away from the foundation could achieve the same intent as the gutter requirement in Item 3.2. To meet this intent, the membrane must be continuous and align with the foundation from grade level to at least 8 inches below grade and then slope ≥ 0.5 in. per ft. away from the home for at least 5 ft. The membrane may align with the foundation directly or, if applicable, insulation or other materials that are in direct contact with the exterior foundation walls. To facilitate drainage, the soil above the membrane must be Group I Soils (i.e. well-drained ground or sand-gravel mixtures), as defined by 2009 IRC Table R405.1. Up to 3 inches of non-Group I soil (e.g., top soil) is allowed on top of the Group I soil. To include this new alternative and improve clarity, Footnote 14 will be split into two Footnotes and the second Footnote will be revised to allow for the additional alternative. The first Footnote will read as follows: “The assessment of whether the soil is expansive or collapsible shall be completed by a certified hydrologist, soil scientist, or engineer.” The second Footnote, which will contain the new alternative, will read as follows: “Any of the following are permitted to be used as alternatives to Item 3.2: a) a roof design that deposits rainwater to a grade-level rock bed with a waterproof liner and a lateral drain pipe that meets discharge requirements per Item 3.2; b) a rainwater harvesting system that drains overflow to meet discharge requirements per Item 3.2; or c) a continuous rubber membrane (e.g. EPDM) that is aligned with the foundation wall from final grade to ≥ 8 in. below grade and then slopes ≥ 0.5 in. per ft. away from the home for at least 5 ft, with Group I Soils (as defined in Footnote 9) covering the membrane to within 3 in. of final grade.”
00513	**07/01/2015**	**Water Management System Builder Checklist (Version 3, Rev. 07)**	**Change**	**Item 3.2 – Applicability of gutters & downspouts to porch roofs**
				Issue: Partners have asked if a roof porch is required to have gutters & downspouts. Partners have also asked if a roof porch that deposits rainwater more than 5 ft. away from a home’s basement or crawlspace foundation fulfills the intent of a gutter system in Item 3.2.

				Resolution: Many porches are built atop footings or a slab, rather than a basement or crawlspace foundation. Only the minority of porches built atop a basement or crawlspace foundation with expansive or collapsible soils are required to have gutters. For a porch that's not required to have gutters and downspouts, if the porch roof discharges all roof rainwater more than 5 ft. from the home's foundation, then the roof area of the home that drains onto the porch roof is not required to have gutters or downspouts. However, the remainder of the home's roof area (i.e., the area that does not drain onto the porch roof) must still have gutters and downspouts.
00079	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Comment**	**Item 3.2 – Expansive or collapsible soils**
				Issue: Partners have asked if builders need to obtain a soil assessment for every home to comply with Item 3.2.
				Resolution: Only a home that is built in expansive or collapsible soils and that does not have a slab on grade foundation is required to meet Item 3.2. Therefore, if the home has a slab on grade foundation, the builder is not required to obtain a soil assessment and can mark this item as 'N/A'. Additionally, if the home is built with properly installed gutters & downspouts, it meets this requirement regardless of soil type and the builder is not required to obtain a soil assessment. A soil assessment is only needed for a home that does not have a slab on grade foundation and for which the builder needs to demonstrate that the soil is not expansive or collapsible so as to avoid the installation of gutters and downspouts.
00296	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Refinement**	**Item 3.2 & Footnote 11 – Gutters & downspouts: alignment w/ Indoor airPLUS language**
				Issue: The Water Management System Builder Checklist is designed to align with EPA's Indoor airPLUS (IAP) program. However, there is a slight disconnect between Item 3.2 and Footnote 11 of the ENERGY STAR Certified Homes program and the IAP program.
				Resolution: To further clarify the intent of this Item and ensure that this checklist aligns with the guidance in IAP, the word "deposit" will be revised to "discharge" and the phrase "not connected to the foundation drain system" will be added to Item 3.2. A note will also be added at the end of this Item directing partners to the alternatives and exemptions in the Footnote. The revised Item will read as follows: **"**For homes that don't have a slab-on-grade foundation and do have expansive or collapsible soils, gutters & downspouts provided that empty to lateral piping that discharges water on sloping final grade ≥ 5 ft. from foundation, or to underground catchment system not connected to the foundation drain system that discharges water ≥ 10 ft. from foundation. See Footnote for alternatives & exemptions."

				Additionally minor revisions to word choice will be made to Footnote 11 to improve consistency as follows: "The assessment of whether the soil is expansive or collapsible shall be completed by a certified hydrologist, soil scientist, or engineer. As an alternative, a roof design is permitted to be used that deposits rainwater to a grade-level rock bed with a waterproof liner and a lateral drain pipe that meets discharge requirements per Item 3.2. As another alternative, a rainwater harvesting system is permitted to be used that drains overflow to meet discharge requirements per Item 3.2."
00239	**09/10/2012**	**Water Management System Builder Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 3.3 – Alternative compliance method**
				Issue: Partners have asked if nailing metal flashing to roof valleys and around roof deck penetrations and sealing the nail holes with roofing tar will meet the intent of Item 3.3, which requires that a self-sealing bituminous membrane be installed at all roof valleys and roof deck penetrations. Partners have suggested that this approach provides an additional durable layer of protection at these vulnerable locations.
				Resolution: Nailing metal flashing to roof valleys and around roof deck penetrations and sealing the nail holes with roofing tar is permitted to be used to meet the intent of Item 3.3.
00514	**07/01/2015**	**Water Management System Builder Checklist (Version 3, Rev. 07)**	**Change**	**Item 3.3 – Self-sealing bituminous membranes and equivalents**
				Issue: Partners have asked for additional guidance on what meets the intent of this Item, which requires the use of a "self-sealing bituminous membrane or equivalent" at all valleys & roof deck penetrations.
				Resolution: The requirements in Item 3.3 are generally derived from Section R905.2.8.2 of the 2009 International Residential Code (IRC). This Section requires that valley linings meet one of the following options: 1. For open valleys (valley lining exposed) lined with metal, the valley lining shall be ≥ 24 inches wide and of any of the corrosion-resistant metals in 2009 IRC Table R905.2.8.2. 2. For open valleys, valley lining of two plies of mineral surfaced roll roofing, complying with ASTM D 3909 or ASTM D 6380 Class M, shall be permitted. The bottom layer shall be 18 inches and the top layer ≥ 36 inches wide. 3. For closed valleys (valley covered with shingles), valley lining of one ply of smooth roll roofing complying with ASTM D 6380 and ≥ 36 inches wide or valley lining as described in Item 1 or 2 above shall be permitted. Self-adhering polymer modified bitumen underlayment complying with ASTM D 1970 shall be permitted in lieu of the lining material. Therefore, it will be clarified that any applicable option in 2009 IRC Section R905.2.8.2 is permitted to be used to meet Item 3.3. Furthermore, EPA will recommend, but not require, that

				partners use products that meet ASTM D1970 to both comply with code and maximize protection of the valleys and roof-deck penetrations. Finally, the language in Item 3.3 will be refined to better align the terminology with that of ASTM D1970 and to emphasize that the use of such products is the recommended approach. To reflect these clarifications, Item 3.3 will be revised to read: "Self-adhering polymer-modified bituminous membrane at all valleys & roof deck penetrations." And a new Footnote will be added to further clarify this intent and provide alternatives, as follows: "As an alternative, any applicable option in 2009 IRC Section R905.2.8.2 is permitted to be used to meet Item 3.3 and any option in 2009 IRC Section R905.2.7.1 is permitted to be used to meet Item 3.4. EPA recommends, but does not require, that products meet ASTM D1970."
00609	**02/23/2017**	**Water Management System Builder Requirements (Version 3 / 3.1, Rev. 08)**	**Change**	**Item 3.3 and 3.4 - Allowance to use Thermoplastic Single-Ply Roofing Products**
				Issue: Partners have noted that thermoplastic single-ply roofing products do not currently satisfy Items 3.3 and 3.4, which define acceptable materials for protecting roof valleys, roof deck penetrations, and eaves in cold climates. Footnote 15 currently allows materials from Sections R905.2.8.2 and R905.2.7.1 of the 2009 IRC to be used as alternatives for meeting Items 3.3 and 3.4, respectively, but these sections only address a variety of bituminous and metallic materials. Bituminous and metallic materials are commonly used in single-family homes for this purpose. However, other roofing options are available, including thermoplastics, which are more commonly used in commercial buildings or multifamily mid- and high-rise complexes with low-slope roofs. A later section in Chapter 9 of the 2009 IRC (R905.13) defines requirements for the application of thermoplastic single-ply roofing products, including thermoplastic polyolefin (TPO). This section is not currently incorporated in Footnote 15. Therefore, partners using TPO in these roofing applications have asked whether such products are an acceptable alternative compliance option when selected and installed in accordance with this Section.
				Resolution: Footnote 15 will be expanded to include the materials listed in section R905.13 of the 2009 IRC as acceptable alternatives to meeting Items 3.3 and 3.4. To reflect this clarification, Footnote 15 will be expanded, as follows: "As an alternative, any applicable option in 2009 IRC Section R905.2.8.2 is permitted to be used to meet Item 3.3 and any option in 2009 IRC Section R905.2.7.1 is permitted to be used to meet Item 3.4. EPA recommends, but does not require, that products meet ASTM D1970. In addition, any option in 2009 IRC Section R905.13 is permitted to be used to meet either Item 3.3 or 3.4."
00515	**07/01/2015**		**Change**	**Item 3.4 – Self-sealing bituminous membranes and equivalents**

		Water Management System Builder Checklist (Version 3, Rev. 07)		**Issue:** Partners have asked for additional guidance on what meets the intent of this Item, which requires in CZ 5 or higher the use of a "self-sealing bituminous membrane or equivalent" over sheathing at eaves from the edge of the roof line to > 2 ft. up roof deck from the interior plane of the exterior wall.
				Resolution: The requirements in Item 3.4 are generally derived from Section R905.2.7.1 of the 2009 International Residential Code (IRC). This Section requires that, where there has been a history of ice forming along the eaves, an ice barrier be provided that meets one of the following options: 1. At least two layers of underlayment cemented together. 2. A self-adhering polymer modified bitumen sheet. Therefore, it will be clarified that any option in 2009 IRC Section R905.2.7.1 is permitted to be used to meet Item 3.4. Furthermore, EPA will recommend, but not require, that partners use products that meet ASTM D1970 to both comply with code and maximize protection of the roof sheathing over eaves from ice dams in Climate Zones 5 and higher. Finally, the language in Item 3.4 will be refined to better align the terminology with that of ASTM D1970 and to emphasize that the use of such products is the recommended approach. To reflect these clarifications, Item 3.4 will be revised to read: "In 2009 IECC Climate Zones 5 & higher, self-adhering polymer-modified bituminous membrane over sheathing at eaves from the edge of the roof line to > 2 ft. up roof deck from the interior plane of the exterior wall." And a new Footnote will be added to further clarify this intent and provide alternatives, as follows: "As an alternative, any applicable option in 2009 IRC Section R905.2.8.2 is permitted to be used to meet Item 3.3 and any option in 2009 IRC Section R905.2.7.1 is permitted to be used to meet Item 3.4. EPA recommends, but does not require, that products meet ASTM D1970."
00516	**07/01/2015**	**Water Management System Builder Checklist (Version 3, Rev. 07)**	**Change**	**Section 4: New Item relocated from HVAC checklist**
				Issue: Partners have expressed several concerns about the required HVAC commissioning tasks, including that additional training resources are needed and that additional oversight is necessary. As a result of these concerns, EPA has assessed whether the commissioning tasks should be streamlined so that available resources can be focused on developing additional training and oversight for the most critical commissioning tasks. Section 12 of the HVAC System Quality Installation Contractor Checklist (HVAC-C) currently requires the HVAC contractor to visually verify that a corrosion-resistant drain pan, properly sloped to a drainage system, has been included with each HVAC component that produces condensate.

				Resolution: The presence of a drain pan is an important component for improving the durability of a home, by managing the condensate produced by HVAC equipment. However, the visual inspection for this component can be completed by the builder just as easily as by the HVAC contractor. Furthermore, its presence is at least as critical to completing the water management system as it is to completing the HVAC system. To help streamline the commissioning tasks required of the HVAC contractor, Item 12.1 of the HVAC-C will be relocated to a new Item on this Checklist.
00240	**09/10/2012**	**Water Management System Builder Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 4.1 – Carpeting in rooms adjacent to bathroom**
				Issue: Partners have asked if it is acceptable to install carpeting within 2.5 ft. of the toilet, tub, or shower if the carpeting is in an adjacent room. For example, a carpeted hallway may be within 2.5 ft. of these utilities.
				Resolution: Item 4.1 only applies to the room containing the toilet, tub, or shower. Therefore, carpeting is permitted to be installed within 2.5 ft. of a toilet, tub, or shower if the carpeting is in an adjacent room.
00154	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 4.2 – Alternatives to cement board**
				Issue: Partners have asked if the Schluter-KERDI shower system, a waterproof membrane designed to be installed over drywall behind ceramic and stone tile coverings, can be used to meet the intent of Item 4.2, which requires “cement board or equivalent moisture-resistant backing material” behind tub and shower enclosures composed of tile or panel assemblies with caulked joints. Partners have noted that this product has been evaluated by the ICC Evaluation Service according to AC 115 – Acceptance Criteria for Waterproof Membranes for Flooring and Shower Lining.
				Resolution: The Schluter-KERDI shower system meets the intent of Item 4.2. AC 115 establishes standards regarding physical performance (ANSI A118.10-1999 Load Bearing, Bonded, Waterproof Membranes For Thin-set Ceramic Tile and Dimension Stone Installations), durability, and installation instructions. Materials that have passed such evaluations are “equivalent moisture-resistant backing materials” and meet the intent of Item 4.2 by helping to ensure that drywall behind them will not be exposed to water, thereby minimizing problems with mold, mildew, and water damage. To minimize the potential for mold growth, paper-faced backerboard must meet mold-resistant standards ASTM D3273 or ASTM D6329 when installed behind waterproof membranes evaluated according to AC 115. Footnote 13 will be revised as follows: “In addition to cement board, materials that have been evaluated by ICC-ES according to AC 115, Acceptance Criteria for Waterproof Membranes for Flooring and Shower Lining, may also be used to meet this requirement. Monolithic tub and shower enclosures (e.g., fiberglass with no seams) are exempt from this backing material requirement unless required by the

				manufacturer. Paper-faced backerboard may only be used behind monolithic enclosures or waterproof membranes that have been evaluated by ICC-ES according to AC 115, and then only if it meets ASTM mold-resistant standards ASTM D3273 or ASTM D6329.”
00155	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Comment**	**Item 4.2 – Use of Thermoply**
				Issue: Partners have asked if Thermoply is a paper-faced product and if it can be used to meet the intent of Item 4.2, which prohibits paper-faced backerboard from being used on walls behind tub and shower enclosures composed of tile or panel assemblies with caulked joints.
				Resolution: Thermoply is a paper-faced product and does not comply with Item 4.2 except when coupled with a moisture-resistant backing material. The intent of Item 4.2 is to ensure that backing material installed behind tile and panel assemblies is not susceptible to mold, mildew, or other water damage.
00297	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 4.4. – Existing building materials with visible signs of water damage or mold**
				Issue: Partners certifying existing homes have questioned whether this Item applies to building materials that are already installed and have expressed concern that the removal of structural building materials is not typically within the scope of a gut rehabilitation.
				Resolution: If mold is present on existing structural building materials, effort should be made to remove all visible signs of mold using detergent or other method. If removal methods are not effective, or if water damage is present, then the material must be replaced. To clarify that the intent of this Item applies to both new and existing homes, Item 4.4 will be revised as follows: **“**Building materials with visible signs of water damage or mold *not* installed or allowed to remain.”
00356	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Item 4.4 & Footnote 14 – Exemption for sap-stain fungi**
				Issue: Partners have noted that it is common for lumber to have dark interior stains in the sapwood caused by sap stain fungi and have requested that this type of generally benign mold be exempt from the requirements of Item 4.4. In addition, they have requested more detailed guidance on mold removal for other types of mold.
				Resolution: In consultation with the Indoor airPLUS program, an exemption will be added to Item 4.4 for sap stain fungi, and guidance on mold removal for other types of mold will be improved. Footnote 14 will be revised as follows: “If mold is present, effort should be made to remove all visible signs of mold (e.g., by damp wipe with water and detergent). If removal methods are not effective, then the material shall be replaced. However, stains that remain after damp wipe are acceptable. Lumber with "sap stain fungi" is exempt from this Item as long as the lumber is structurally intact.”

00357	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 4.5 – Both interior and exterior walls with high moisture content not to be enclosed**
				Issue: Partners have suggested that Item 4.5 can easily be misinterpreted as only requiring that interior, as opposed to exterior, walls not be enclosed if they have framing members or insulation products with high moisture content. In reality, this Item is intended to prevent the interior face of all walls from being enclosed with drywall if high moisture content is present.
				Resolution: To clarify that the intent of Item 4.5 is to prevent any interior or exterior wall from being enclosed (e.g. with drywall) if it contains framing members or insulation products with high moisture content, Item 4.5 will be revised as follows: "Framing members and insulation products having high moisture content *not* enclosed (e.g., with drywall)"
00156	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Comment**	**Builder Employee field**
				Issue: Partners have asked if the Builder Employee field is required to be completed for every home.
				Resolution: The builder employee name must be documented if any items on the Checklist are marked "Builder Verified".
00358	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Footnote 3 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, a completed Indoor airPLUS Verification Checklist is no longer permitted to be completed in lieu of this Checklist. As a result Footnote 3, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist, will be removed.
00669	**06/29/2018**	**Water Management System Builder Requirements (Version 3 / 3.1, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to "National Water Management System Builder Requirements

				(Version 3 / 3.1, Rev. 08)". Additionally, any references to this document in other program documents will be updated to use the updated title.
00080	**07/25/2011**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 03)**	**Refinement**	**Crawlspace wall insulation characteristics**
				Issue: Partners have noted that for homes with crawlspace foundations, the Expanded ENERGY STAR Reference Design Definition requires that the crawlspace conditioning type always be vented and therefore configured with floor insulation. Therefore, references in this document to unvented crawlspaces and to crawlspace wall insulation are irrelevant.
				Response: To improve clarity, references to unvented crawlspaces and crawlspace wall insulation will be removed from the Building Component section for Foundations, as follows: • The first bullet in the Insulation section will be revised to state, "Basement Wall Assembly U-factor only applies to conditioned basements; if applicable, insulation shall be located on interior side of walls". • A new bullet will be added, stating, "Floor assemblies above crawlspace foundations shall be configured to meet the applicable floor assembly U-factor listed in the building component section for Floors over Unconditioned Spaces". • The line item listing Crawlspace Wall Assembly U-Factor values will be deleted.
00517	**07/01/2015**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 07)**	**Comment**	**Insulation levels for above and below grade basement walls**
				Issue: Partners have asked if a basement wall must comply with the insulation level requirements for above-grade walls or the insulation requirements for basement walls when the basement walls are partially above ground.
				Resolution: The wall insulation requirements are to be determined for each basement wall, rather than for the basement as a whole. For each basement wall, if ≥ 50% of the surface area is below grade, that wall shall comply with the insulation requirements for basement walls. For each basement wall, if < 50% of the surface area is below grade, that wall shall comply with the insulation requirements for above-grade walls. Note that this policy may result in different insulation levels for different walls within a single basement (e.g., three out of four walls in a walkout basement may be configured with the wall insulation requirements for basements while the fourth wall is configured with the insulation requirements for above-grade walls).
00081	**07/25/2011**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 03)**	**Change**	**Determining gross basement wall area**
				Issue: Partners have expressed difficulty determining the percentage of gross basement wall area that is below grade when walls are not in contact with either the ground or outdoor ambient air. This occurs, for example, when a wall separates the basement spaces of adjacent townhome units.

				Response: EPA intended to exclude walls that are not in contact with either the ground or outdoor ambient air because of the difficulty of determining the area of the above-grade and below-grade portions of those walls. The beginning of Footnote 1 will be revised to read as follows: "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)."
00082	**07/25/2011**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 03)**	**Change**	**Basement exclusion from Size Adjustment Factor**
				Issue: Partners have asked EPA to allow bedrooms in basements to be included when determining the Benchmark Home Size. In the rare instances where the majority of bedrooms in a home are located in the basement, excluding these bedrooms can result in the application of a significant Size Adjustment Factor, resulting in a meaningfully more stringent ENERGY STAR HERS Index Target.
				Response: To eliminate this hardship for these homes, EPA will now allow all bedrooms in the home to be counted when determining the Benchmark Home Size, regardless of location. This policy change will result in the same or less stringent target for all partners. Note that no change is being made to EPA's policy of excluding floor area in basements with at least half of the gross surface area of the exterior walls below grade. That is to say, 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 when determining a home's Benchmark Home Size, Size Adjustment Factor, and eligibility to use the Prescriptive Path. The document will be revised as follows: • The last paragraph of Step 2 will be revised as follows: "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. If the CFA of the home to be built exceeds the CFA of the Benchmark Home, then the Performance Path shall be used. Because the SAF cannot exceed 1.0, it only modifies the HERS Index Target for homes with conditioned floor area greater than the Benchmark Home. For condos and apartments in multi-family buildings the SAF shall always equal 1.0. • Footnote 1 will be revised as follows; "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 this change 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). If a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used."
00158	**01/15/2012**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 04)**	**Comment**	**Glazing area**
				Issue: Partners have asked if windows located in the basement of the Rated Home should be included when calculating the glazing area of the ENERGY STAR Reference Design Home.
				Resolution: If the basement of the Rated Home is conditioned, then the glazing area in the basement should be included when configuring the ENERGY STAR Reference Design Home. Note that the glazing area of the ENERGY STAR Reference Design Home is capped at 15% of the conditioned floor area of the Rated Home. If the basement of the Rated Home is not conditioned, then the glazing area in the basement should be excluded.
00241	**09/10/2012**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 05)**	**Refinement**	**Exhibit 1 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 1, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 1. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from Step 2.
00518	**07/01/2015**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 07)**	**Clarification**	**Exhibit 2 - Configuration of thermal boundary in basements**
				Issue: Home energy rating software vendors have asked for clarification when configuring the foundation insulation of the ENERGY STAR Reference Design in a home with a basement. Some home energy rating software programs provide the user with the ability to specify the thermal boundary location independent of the conditioned space boundary in the basement of the rated home, whereas other programs do not.
				Resolution: If software provides the user with the ability to specify the thermal boundary location independent of the conditioned space boundary in the basement of a Rate home (e.g., REM/Rate), then this specified thermal boundary location shall be used to configure the foundation insulation in the ENERGY STAR Reference Design Home. If software does not provide the user with this ability, but rather uses the location of the conditioned space boundary to determine the thermal boundary location, then this logic shall be used to configure the foundation insulation in the ENERGY STAR Reference Design Home.

				The Insulation sub-section of the Foundation Section and the Floors Over Unconditioned Spaces Section of Exhibit 2 shall reference a new Footnote that reads 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."
00519	**07/01/2015**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 07)**	**Clarification**	**Exhibit 2 – Heating & cooling equipment configuration when Rated Home has neither**
				Issue: Partners have asked for clarification on how the heating and cooling equipment should be configured in the ENERGY STAR Reference Design Home when the Rated Home does not have heating or cooling equipment.
				Resolution: The same logic that is in BSR/RESNET Standard 301-2013" will be used to configure the ENERGY STAR Reference Design, which should result in a policy that neither penalizes nor rewards homes that do not include heating or cooling equipment. To reflect this clarification, the Heating Systems Section of Exhibit 2 will reference a new Footnote in the System Type subsection 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." And the Cooling Systems Section of Exhibit 2 will reference a new Footnote in the System Type subsection 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."
00359	**06/01/2013**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 06)**	**Change**	**Exhibit 2, Service Water Heating Systems – Addition of oil water heater Energy Factors**
				Issue: Partners have noted that Energy Factors (EF) for oil hot water heaters are not provided in the Service Water Heating Systems Section of Exhibit 2.
				Resolution: The following rows will be added to the Service Water Heating Systems Section of Exhibit 2 to address the configuration of the ENERGY STAR Reference Design for homes with oil water heating: **Oil Storage Tank Capacity: 30 Gallon 40 Gallon 50 Gallon 60 Gallon 70 Gallon 80 Gallon** **Oil DHW EF:** 0.55 0.53 0.51 0.49 0.47 0.45
00360	**06/01/2013**		**Change**	**Exhibit 2, Service Water Heating Systems – Tank size**

		HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 06)		**Issue:** Partners have noted that the Service Water Heating Systems Section of Exhibit 2 does not contain guidance on which tank size to model.
				Resolution: The System Type definition in the Service Water Heating Systems Section of Exhibit 2 will be revised as follows to address the tank size to be modeled: "System Type: Conventional storage water heater with tank size equal to that of Rated Home, unless Rated Home uses instantaneous water heater, in which case select 40 gallon tank for gas systems and 60 gallon tank for electric systems. Select applicable efficiency from below using tank size of Reference Home."
00520	**07/01/2015**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 07)**	**Change**	**Exhibit 2 - Expanded ENERGY STAR Reference Design Definition - Duct leakage limits for systems serving small spaces**
				Issue: Partners have indicated that they are having challenges meeting the total duct leakage limits defined in Item 4.1 of the HVAC System Quality Installation Rater Checklist for HVAC systems serving small spaces, such as a multifamily dwelling unit or a small zone within a home that has a dedicated system. While total leakage generally decreases as the amount of floor area served by the system decreases, the total leakage ultimately hits a 'floor' – a value that cannot be further decreased without extraordinary effort. This is primarily due to the air handler because the surface area of the enclosure, which generally correlates with the amount of leakage from that component, does not decrease linearly as the amount of floor area served by the system decreases.
				Resolution: To address the challenges that partners are experiencing for systems serving small spaces, an absolute amount of allowed duct leakage will be added to the program requirements. The current limit on total duct leakage at 'rough-in' will be 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 will be 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 the Thermal Distribution Systems section of Exhibit 2 will be revised as follows: "Duct leakage to Outside: the greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or ≤ 40 CFM25."
00521	**07/01/2015**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 07)**	**Change**	**Thermal Distribution Systems Section – Duct location for multifamily dwelling units**
				Issue: Partners have noted that it is unclear how to configure the duct locations of the reference home for homes that do not meet any of the conditions in the 'Supply and Return Duct Locations:' sub-header in the Thermal Distribution Systems Section (e.g., multifamily dwelling unit with conditioned unit below).

				Resolution: 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 will be 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."
00522	**07/01/2015**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 07)**	**Change**	**Exhibit 2 – Quantity of ceiling fans**
				Issue: Partners have asked for clarification on the quantity of ceiling fans that the ENERGY STAR Reference Design home should be configured with.
				Resolution: The quantity of ceiling fans in the ENERGY STAR Reference Design home shall equal the number of bedrooms plus one when ceiling fans are present in the Rated home; otherwise the quantity shall be zero. The Ceiling Fan row of the Lighting, Appliances, & Internal Gains Section of Exhibit 2 will be revised as follows to reflect this clarification: "Ceiling Fan: 122 CFM per Watt; Quantity = Number of bedrooms + 1 when ceiling fans present in Rated Home; otherwise Quantity = 0".
00523	**07/01/2015**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 05)**	**Comment**	**Insulation levels for above and below grade basement walls**
				Issue: Partners have asked if a basement wall must comply with the insulation level requirements for above-grade walls or the insulation requirements for basement walls when the basement walls are partially above ground.
				Resolution: The wall insulation requirements are to be determined for each basement wall, rather than for the basement as a whole. For each basement wall, if ≥ 50% of the surface area is below grade, that wall shall comply with the insulation requirements for basement walls. For each basement wall, if < 50% of the surface area is below grade, that wall shall comply with the insulation requirements for above-grade walls. Note that this policy may result in different insulation levels for different walls within a single basement (e.g., three out of four walls in a walkout basement may be configured with the wall insulation requirements for basements while the fourth wall is configured with the insulation requirements for above-grade walls).
00524	**07/01/2015**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 05)**	**Clarification**	**Exhibit 2 - Configuration of thermal boundary in basements**
				Issue: Home energy rating software vendors have asked for clarification when configuring the foundation insulation of the ENERGY STAR Reference Design in a home with a basement. Some home energy rating software programs provide the user with the ability to specify the thermal boundary location independent of the conditioned space boundary in the basement of the rated home, whereas other programs do not.
				Resolution: If software provides the user with the ability to specify the thermal boundary location independent of the conditioned space boundary in the basement of a Rate home (e.g.,

				REM/Rate), then this specified thermal boundary location shall be used to configure the foundation insulation in the ENERGY STAR Reference Design Home. If software does not provide the user with this ability, but rather uses the location of the conditioned space boundary to determine the thermal boundary location, then this logic shall be used to configure the foundation insulation in the ENERGY STAR Reference Design Home. The Insulation sub-section of the Foundation Section and the Floors Over Unconditioned Spaces Section of Exhibit 2 shall reference a new Footnote that reads 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."
00525	**07/01/2015**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 05)**	**Clarification**	**Exhibit 2 – Heating & cooling equipment configuration when Rated Home has neither**
				Issue: Partners have asked for clarification on how the heating and cooling equipment should be configured in the ENERGY STAR Reference Design Home when the Rated Home does not have heating or cooling equipment.
				Resolution: The same logic that is in BSR/RESNET Standard 301-2013 will be used to configure the ENERGY STAR Reference Design, which should result in a policy that neither penalizes nor rewards homes that do not include heating or cooling equipment. To reflect this clarification, the Heating Systems Section of Exhibit 2 will reference a new Footnote in the System Type subsection 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." And the Cooling Systems Section of Exhibit 2 will reference a new Footnote in the System Type subsection 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."
00709	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Change**	**Exhibit 2 - Heating Systems and Cooling Systems – Equipment capacity and EAE**
				Issue: Partners have asked EPA about two attributes of heating and cooling equipment in the ENERGY STAR Reference Design Home. The first is about the acceptable methodologies for selecting the capacity of the heating and cooling equipment. Partners have noted that ANSI / RESNET / ICC Std. 301 has refined

				language regarding this process. More importantly, Std. 301 does not allow the equipment capacity of the rated home to be used for the Energy Rating Reference Home. This option was included for the ENERGY STAR Reference Design Home when ENERGY STAR Version 3 was first drafted to ease the burden for ERI software programs. However, it appears that none of the software providers are using this option. The second attribute is the Electric Auxiliary Energy (EAE) of non-electric warm furnaces and non-electric boilers. This attribute is not specified, yet can potentially have a significant impact on the efficiency of the home so omitting it could lead to inconsistencies in how the ENERGY STAR Reference Design Home is configured.
				Resolution: To clarify the configuration of these two attributes, the Heating Systems and Cooling Systems Sections will be revised as follows: In the Heating Systems Section, the first row will be revised as follows: “Heating capacity shall be selected in accordance with ACCA Manual S based on building heating and cooling loads calculated in accordance with ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure”. In the Heating Systems Section, a new row will be added at the bottom of this section with the following language: “For non-electric warm furnaces and non-electric boilers, the Electric Auxiliary Energy shall be determined in accordance with the methodology for the Energy Rating Reference Home in ANSI / RESNET / ICC Std. 301, using the capacity determined in this Section”. This will be associated with a new Footnote as follows: “The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter.” In the Cooling Systems Section, the first row will be revised as follows: “Cooling capacity shall be selected in accordance with ACCA Manual S based on building heating and cooling loads calculated in accordance with ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure.
00715	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Exhibit 2 - Heating Systems and Cooling Systems – Equipment capacity and EAE**
				Issue: Partners have asked EPA about two attributes of heating and cooling equipment in the ENERGY STAR Reference Design Home. The first is about the acceptable methodologies for selecting the capacity of the heating and cooling equipment. Partners have noted that ANSI / RESNET / ICC Std. 301 has refined language regarding this process. More importantly, Std. 301 does not allow the equipment capacity of the rated home to be used for the Energy Rating Reference Home. This option was included for the ENERGY STAR Reference Design Home when ENERGY STAR Version 3 was first drafted to ease the burden for ERI software programs. However, it appears that none of the software providers are using this option.

				The second attribute is the Electric Auxiliary Energy (EAE) of non-electric warm furnaces and non-electric boilers. This attribute is not specified, yet can potentially have a significant impact on the efficiency of the home so omitting it could lead to inconsistencies in how the ENERGY STAR Reference Design Home is configured.
				Resolution: To clarify the configuration of these two attributes, the Heating Systems and Cooling Systems Sections will be revised as follows: In the Heating Systems Section, the first row will be revised as follows: "Heating capacity shall be selected in accordance with ACCA Manual S based on building heating and cooling loads calculated in accordance with ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure". In the Heating Systems Section, a new row will be added at the bottom of this section with the following language: "For non-electric warm furnaces and non-electric boilers, the Electric Auxiliary Energy shall be determined in accordance with the methodology for the Energy Rating Reference Home in ANSI / RESNET / ICC Std. 301, using the capacity determined in this Section". This will be associated with a new Footnote as follows: "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter." In the Cooling Section, the first row will be revised as follows: "Cooling capacity shall be selected in accordance with ACCA Manual S based on building heating and cooling loads calculated in accordance with ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure".
00526	**07/01/2015**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 05)**	**Change**	**Thermal Distribution Systems Section – Duct location for multifamily dwelling units**
				Issue: Partners have noted that it is unclear how to configure the duct locations of the reference home for homes that do not meet any of the conditions in the 'Supply and Return Duct Locations:' sub-header in the Thermal Distribution Systems Section (e.g., multifamily dwelling unit with conditioned unit below).
				Resolution: 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 will be 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 conditioned space."
00527	**07/01/2015**	**HERS Index Target Procedure for National Program**	**Change**	**Exhibit 2 – Quantity of ceiling fans**
				Issue: Partners have asked for clarification on the quantity of ceiling fans that the ENERGY STAR Reference Design home should be configured with.

		Requirements (Version 3.1, Rev. 05)		**Resolution:** The quantity of ceiling fans in the ENERGY STAR Reference Design home shall equal the number of bedrooms plus one when ceiling fans are present in the rated home; otherwise the quantity shall be zero. The Ceiling Fan row of the Lighting, Appliances, & Internal Gains Section of Exhibit 2 will be revised as follows to reflect this clarification: "Ceiling Fan: 122 CFM per Watt; Quantity = Number of bedrooms + 1 when ceiling fans present in the Rated Home; otherwise Quantity = 0".
00589	**08/08/2016**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Clarification**	**Exhibit 2 - Service Water Heating Systems**
				Issue: Policy Record Entry 00708 contains the most recent resolution of this issue. This issue (ID 00589) is only being retained to maintain a complete Policy Record. Partners have asked whether the ENERGY STAR Reference Design Definition, which currently sets the hot water use equal to that of the HERS Reference Home, should be changed with the release of ANSI/RESNET/ICC 301-2014, Addendum A-2015. ANSI/RESNET/ICC 301-2014, Addendum A-2015 defines a new methodology for calculating this value by incorporating features including: efficient clothes washers; efficient dishwashers; low-flow showers and faucets; water inlet, setpoint, and use temperatures; drain water heat recovery systems; pipe length; hot water pipe insulation; and the presence of a recirculation system with various control types. When originally defining the ENERGY STAR HERS Reference Home, such features were not credited. While the recognition of such features now allows partners to use them to improve the HERS index of the rated home, it is unclear whether the ENERGY STAR HERS Reference Home now incorporates any of these features.
				Resolution: Policy Record Entry 00708 contains the most recent resolution of this issue. This issue (ID 00589) is only being retained to maintain a complete Policy Record. So as not to increase the stringency of the ENERGY STAR program in between versions, the hot water use specified in the ENERGY STAR Reference Design Definition will continue to be set equal to HERS Reference Home. Effectively, this means that the ENERGY STAR HERS index target will be no more stringent than before the release of ANSI/RESNET/ICC 301-2014, Addendum A-2015. Furthermore, partners will be free to incorporate water efficiency features into their rated homes to both improve the HERS index target and help meet the ENERGY STAR HERS index target. Because the hot water use of the ENERGY STAR Reference Design Home will continue to align with the HERS Reference Home, no revisions are needed for that attribute. To reinforce that the ENERGY STAR Reference Design Home will not be configured with a recirculation system, the annual pump energy will be set to 0 kWh. To reflect this, a row will be added to the Service Water Heating System of Exhibit 2 that reads: "Recirculation Pump: 0 kWh per year"

00592	**08/08/2016**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Clarification**	**Exhibit 2 - Service Water Heating Systems**
				Issue: Policy Record Entry 00714 contains the most recent resolution of this issue. This issue (ID 00592) is only being retained to maintain a complete Policy Record. Partners have asked whether the ENERGY STAR Reference Design Definition, which currently sets the hot water use equal to that of the HERS Reference Home, should be changed with the release of ANSI/RESNET/ICC 301-2014, Addendum A-2015. ANSI/RESNET/ICC 301-2014, Addendum A-2015 defines a new methodology for calculating this value by incorporating features including: efficient clothes washers; efficient dishwashers; low-flow showers and faucets; water inlet, setpoint, and use temperatures; drain water heat recovery systems; pipe length; hot water pipe insulation; and the presence of a recirculation system with various control types. When originally defining the ENERGY STAR HERS Reference Home, such features were not credited. While the recognition of such features now allows partners to use them to improve the HERS index of the rated home, it is unclear whether the ENERGY STAR HERS Reference Home now incorporates any of these features.
				Resolution: Policy Record Entry 00714 contains the most recent resolution of this issue. This issue (ID 00592) is only being retained to maintain a complete Policy Record. So as not to increase the stringency of the ENERGY STAR program in between versions, the hot water use specified in the ENERGY STAR Reference Design Definition will continue to be set equal to HERS Reference Home. Effectively, this means that the ENERGY STAR HERS index target will be no more stringent than before the release of ANSI/RESNET/ICC 301-2014, Addendum A-2015. Furthermore, partners will be free to incorporate water efficiency features into their rated homes to both improve the HERS index target and help meet the ENERGY STAR HERS index target. Because the hot water use of the ENERGY STAR Reference Design Home will continue to align with the HERS Reference Home, no revisions are needed for that attribute. To reinforce that the ENERGY STAR Reference Design Home will not be configured with a recirculation system, the annual pump energy will be set to 0 kWh. To reflect this, a row will be added to the Service Water Heating System of Exhibit 2 that reads: "Recirculation Pump: 0 kWh per year"
00636	**09/01/2017**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Change**	**Exhibit 2 – Adjusted tank size when rated home has gas instant water heater**
				Issue: Partners have discovered that the ENERGY STAR HERS Index Target becomes more stringent when upgrading a rated home from a gas 50 gallon storage water heater to a gas instantaneous water heater. This is because the ENERGY STAR HERS Index Target procedure specifies that for a rated home with a gas instantaneous water heater, the ENERGY

				STAR Reference Design Home is to be configured with a gas 40 gallon storage water heater with a corresponding efficiency of 0.61 EF.
				Resolution: EPA did not intend to make the ENERGY STAR HERS index target more stringent when the rated home is upgraded from a storage water heater to an instant water heater. Partners have indicated that the most common gas storage water heater size is 50 gallons. In order to address this inadvertent impact on the ENERGY STAR HERS Index Target, when the rated home has a gas instantaneous water heater, the tank capacity specified in the Service Water Heating Systems section in Exhibit 2 will be changed.as follows: "Conventional storage water heater with tank size equal to that of Rated Home, unless Rated Home uses instantaneous water heater in which case select 50 gallon tank for gas systems and 60 gallon tank for electric systems…"
00639	**09/01/2017**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Exhibit 2 – Adjusted tank size when rated home has gas instant water heater**
				Issue: Partners have discovered that the ENERGY STAR HERS Index Target becomes more stringent when upgrading a rated home from a gas 50 gallon storage water heater to a gas instantaneous water heater. This is because the ENERGY STAR HERS Index Target procedure specifies that for a rated home with a gas instantaneous water heater, the ENERGY STAR Reference Design Home is to be configured with a gas 40 gallon storage water heater with a corresponding efficiency of 0.61 EF.
				Resolution: EPA did not intend to make the ENERGY STAR HERS index target more stringent when the rated home is upgraded from a storage water heater to an instant water heater. Partners have indicated that the most common gas storage water heater size is 50 gallons. In order to address this inadvertent impact on the ENERGY STAR HERS Index Target, when the rated home has a gas instantaneous water heater, the tank capacity specified in the Service Water Heating Systems section in Exhibit 2 will be changed.as follows: "Conventional storage water heater with tank size equal to that of Rated Home, unless Rated Home uses instantaneous water heater in which case select 50 gallon tank for gas systems and 60 gallon tank for electric systems…"
00710	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Clarification**	**Exhibit 2- Lighting, Appliances, & Internal Gains – Tier I lighting**
				Issue: Partners have asked if the lighting specified in this Section refers to Tier I or Tier II lighting.
				Resolution: To clarify that the lighting in this Section is intended to refer to Tier I lighting, the lighting portion of this Section will be revised as follows: "Lighting: Fraction of qualifying Tier I fixtures to all fixtures in qualifying light fixture locations: 80% for interior; 0% for exterior and garage"
00711	**09/01/2018**		**Clarification**	**Exhibit 2 - Lighting, Appliances, & Internal Gains – Dishwasher place setting capacity**

		HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)		**Issue:** Partners have noted that the dishwasher specified in this Section omits a value for dishwasher place setting capacity. This input is required to determine the consumption of the dishwasher, so omitting it could lead to inconsistencies in how the ENERGY STAR Reference Design Home is configured.
				Resolution: To clarify that the dishwasher place setting capacity shall be set equal to the rated home, the dishwasher portion of this Section will be revised as follows: "Dishwasher: 0.66 EF, Place Setting Capacity Same as Rated Home"
00717	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Clarification**	**Exhibit 2 - Lighting, Appliances, & Internal Gains – Dishwasher place setting capacity**
				Issue: Partners have noted that the dishwasher specified in this Section omits a value for dishwasher place setting capacity. This input is required to determine the consumption of the dishwasher, so omitting it could lead to inconsistencies in how the ENERGY STAR Reference Design Home is configured.
				Resolution: To clarify that the dishwasher place setting capacity shall be set equal to the rated home, the dishwasher portion of this Section will be revised as follows: "Dishwasher: 0.66 EF, Place Setting Capacity Same as Rated Home"
00716	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Clarification**	**Exhibit 2- Lighting, Appliances, & Internal Gains – Tier I lighting**
				Issue: Partners have asked if the lighting specified in this Section refers to Tier I or Tier II lighting.
				Resolution: To clarify that the lighting in this Section is intended to refer to Tier I lighting, the lighting portion of this Section will be revised as follows: "Lighting: Fraction of qualifying Tier I fixtures to all fixtures in qualifying light fixture locations: 90% for interior; 0% for exterior and garage"
00590	**08/08/2016**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Clarification**	**Lighting, Appliances, & Internal Gains - % qualifying lighting**
				Issue: Partners have asked if the percent of qualifying lighting specified in this Section refers to interior, outdoor, or garage lighting.
				Resolution: To clarify that the percent of qualifying lighting in this Section is intended to refer to the interior lighting, the lighting portion of this Section will be revised as follows: "Lighting: Fraction of qualifying fixtures to all fixtures in qualifying light fixture locations: 80% for interior; 0% for exterior and garage"
00593	**08/08/2016**	**HERS Index Target Procedure for National Program**	**Clarification**	**Lighting, Appliances, & Internal Gains - % qualifying lighting**
				Issue: Partners have asked if the percent of qualifying lighting specified in this Section refers to interior, outdoor, or garage lighting.

		Requirements (Version 3.1, Rev. 08)		**Resolution:** To clarify that the percent of qualifying lighting in this Section is intended to refer to the interior lighting, the lighting portion of this Section will be revised as follows: "Lighting: Fraction of qualifying fixtures to all fixtures in qualifying light fixture locations: 90% for interior; 0% for exterior and garage"
00712	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Clarification**	**Exhibit 2 – Clothes washer and dryer configured with same efficiency as Energy Rating Reference Home**
				Issue: Partners have asked for clarification on how the clothes washer and dryer should be configured in the ENERGY STAR Reference Design Home. Currently, no guidance is provided specific to these appliances, yet a footnote states that, "Any parameter not specified in this exhibit shall be set to 'Same as Rated Home'". Therefore, partners have asked whether these appliances should be configured to align with the rated home or with the Energy Rating Reference Home.
				Resolution: The clothes washer and dryer in the ENERGY STAR Reference Design Home will be specified to be the same efficiency as the Energy Rating Reference Home. The Lighting, Appliances & Internal Gains section of Exhibit 2, Expanded ENERGY STAR Reference Design Definition, will be updated to reflect this by including a new cell with the following language: "Clothes Washer and Dryer: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301" A new Footnote will also be added to this cell to clarify that, "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter." Configuring the clothes washer and dryer in the ENERGY STAR Reference Design Home with the same efficiency as the Energy Rating Reference Home will give partners credit towards their ENERGY STAR HERS Index Target when using more efficient clothes washers and dryers. Furthermore, it will maintain the current stringency of the program requirements.
00718	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Clarification**	**Exhibit 2 – Clothes washer and dryer configured with same efficiency as Energy Rating Reference Home**
				Issue: Partners have asked for clarification on how the clothes washer and dryer should be configured in the ENERGY STAR Reference Design Home. Currently, no guidance is provided specific to these appliances, yet a footnote states that, "Any parameter not specified in this exhibit shall be set to 'Same as Rated Home'". Therefore, partners have asked whether these appliances should be configured to align with the rated home or with the Energy Rating Reference Home.
				Resolution: The clothes washer and dryer in the ENERGY STAR Reference Design Home will be specified to be the same efficiency as the Energy Rating Reference Home. The Lighting,

				Appliances & Internal Gains section of Exhibit 2, Expanded ENERGY STAR Reference Design Definition, will be updated to reflect this by including a new cell with the following language: "Clothes Washer and Dryer: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301" A new Footnote will also be added to this cell to clarify that, "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter." Configuring the clothes washer and dryer in the ENERGY STAR Reference Design Home with the same efficiency as the Energy Rating Reference Home will give partners credit towards their ENERGY STAR HERS Index Target when using more efficient clothes washers and dryers. Furthermore, it will maintain the current stringency of the program requirements.
00638	**09/01/2017**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Exhibit 2 – Climate Zone 3 furnace reduced from 90 to 80 AFUE**
				Issue: Partners have expressed difficulty meeting the Version 3.1 HERS Index Target for Climate Zone 3, which has more aggressive targets relative to other climate zones. Specifically, partners in TX have noted that 90 AFUE furnaces are rarely installed and not perceived to be cost-effective.. While the use of a 90 AFUE furnace is not mandatory, the Version 3.1 ENERGY STAR Reference Design home is configured with one in Climate Zone 3. Partners have indicated that there are few cost-effective measures available to compensate when a 90 AFUE furnace is omitted. EPA analyzed the impact of changing the gas furnace efficiency from 90 AFUE to 80 AFUE in Climate Zone 3, and found that meaningful energy savings for the ENERGY STAR Reference Home were maintained.
				Resolution: In order to address the challenges Partners have had in meeting the HERS Index Target for Climate Zone 3, while maintaining meaningful energy savings, the Gas Furnace AFUE for CZ 3 in the Heating Systems section of Exhibit 2 will be revised to "80".
00719	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Refinement**	**Footnote 9 - Alignment of window area terminology with Standard 301**
				Issue: The terminology in Footnote 9, used when calculating the Reference Home's total window area for homes with conditioned basements and attached homes, is not fully aligned with Footnote (b) of Table 4.2.2(1) of ANSI / RESNET / ICC Standard 301-2014.
				Resolution: To align with the terminology used in Standard 301 and prevent potential confusion, Footnote 9 will be revised. The equation will be updated as follows: "AG = 0.15 x CFA x FA x F" The first set of bullet points will be updated as follows: • "AG = Total glazing area • CFA = Total conditioned floor area

				• FA = (Gross above-grade thermal boundary wall area) / (Gross above-grade thermal boundary wall area + 0.5 x Gross below-grade thermal boundary wall area) • F = 1 - 0.44 x (Gross common wall area) / (Gross above-grade thermal boundary wall area + Gross common wall area)" The second set of bullet points will be updated as follows: • "Thermal boundary wall is any wall that separates Conditioned Space from Unconditioned Space, outdoor environment, or the surrounding soil; • Above-grade thermal boundary wall is any portion of a thermal boundary wall not in contact with soil; • Below-grade thermal boundary wall is any portion of a thermal boundary wall in soil contact; and Common wall is the total wall area of walls adjacent to another conditioned living unit, not including foundation walls."
00713	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Refinement**	**Footnote 10 - Alignment of window area terminology with Standard 301**
				Issue: The terminology in Footnote 10, used when calculating the Reference Home's total window area for homes with conditioned basements and attached homes, is not fully aligned with Footnote (b) of Table 4.2.2(1) of ANSI / RESNET / ICC Standard 301-2014.
				Resolution: To align with the terminology used in Standard 301 and prevent potential confusion, Footnote 10 will be revised. The equation will be updated as follows: "AG = 0.15 x CFA x FA x F" The first set of bullet points will be updated as follows: • "AG = Total glazing area • CFA = Total conditioned floor area • FA = (Gross above-grade thermal boundary wall area) / (Gross above-grade thermal boundary wall area + 0.5 x Gross below-grade thermal boundary wall area) • F = 1 - 0.44 x (Gross common wall area) / (Gross above-grade thermal boundary wall area + Gross common wall area)" The second set of bullet points will be updated as follows: • "Thermal boundary wall is any wall that separates Conditioned Space from Unconditioned Space, outdoor environment, or the surrounding soil; • Above-grade thermal boundary wall is any portion of a thermal boundary wall not in contact with soil;

				• Below-grade thermal boundary wall is any portion of a thermal boundary wall in soil contact; and Common wall is the total wall area of walls adjacent to another conditioned living unit, not including foundation walls."
00594	**08/08/2016**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Clarification**	**Footnote 10 – Updated reference to RESNET standard**
				Issue: Policy Record Entry 00714 contains the most recent resolution of this issue. This issue (ID 00594) is only being retained to maintain a complete Policy Record. The Footnote that contains the reference to RESNET's standard for configuring the HERS Reference Home is outdated now that ANSI/RESNET/ICC Standard 301-2014 has been published. Standard 301, the "Standard for the Calculation and Labeling of the Energy Performance of Low-Rise Residential Buildings using an Energy Rating Index", is the ANSI standard that supersedes RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard.
				Resolution: Policy Record Entry 00714 contains the most recent resolution of this issue. This issue (ID 00594) is only being retained to maintain a complete Policy Record. To clarify how certain parameters of the ENERGY STAR Reference Design should be configured, references to RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard will be replaced with a reference to ANSI/RESNET/ICC Standard 301-2014, as follows: "RESNET requires that all RESNET-accredited Home Energy Rating software programs automatically configure this parameter per ANSI/RESNET/ICC Standard 301-2014 when calculating a HERS index value"
00591	**08/08/2016**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Clarification**	**Footnote 11 – Updated reference to RESNET standard**
				Issue: Policy Record Entry 00708 contains the most recent resolution of this issue. This issue (ID 00591) is only being retained to maintain a complete Policy Record. The Footnote that contains the reference to RESNET's standard for configuring the HERS Reference Home is outdated now that ANSI/RESNET/ICC Standard 301-2014 has been published. Standard 301, the "Standard for the Calculation and Labeling of the Energy Performance of Low-Rise Residential Buildings using an Energy Rating Index", is the ANSI standard that supersedes RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard.
				Resolution: Policy Record Entry 00708 contains the most recent resolution of this issue. This issue (ID 00591) is only being retained to maintain a complete Policy Record. To clarify how certain parameters of the ENERGY STAR Reference Design should be configured, references to RESNET's 2006 Mortgage Industry National Home Energy Rating

				Systems Standard will be replaced with a reference to ANSI/RESNET/ICC Standard 301-2014, as follows: "RESNET requires that all RESNET-accredited Home Energy Rating software programs automatically configure this parameter per ANSI/RESNET/ICC Standard 301-2014 when calculating a HERS index value."
00670	**06/29/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to "National HERS Index Target Procedure (Version 3, Rev. 08)". Additionally, any references to this document in other program documents will be updated to use the updated title.
00672	**06/29/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to "National HERS Index Target Procedure (Version 3.1, Rev. 08)". Additionally, any references to this document in other program documents will be updated to use the updated title.
00671	**06/29/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Refinement**	**Removal of steps for manual calculation of HERS Index Target**
				Issue: Archive Policy Record entry 00303 states that "the process of determining the ENERGY STAR HERS Index Target must be completed using a RESNET-accredited rating software program, and is no longer permitted to be completed manually". However, guidance for manual configuration of the HERS Index Target is still provided in this document. Furthermore, there are several minor differences between this document and the Version 3.1 ENERGY STAR HERS Index Target Procedure.
				Resolution: In order to remove any ambiguity regarding the requirement of determining the HERS Index Target using a RESNET-accredited rating software program and to align with the Version 3.1 ENERGY STAR HERS Index Target Procedure, the following edits will be made: • The word 'detailed' will be removed from the first sentence of the document. • The word 'numerical' will be added before the phrase "HERS Index value" • The phrase "a home can achieve and be certified" will be replaced with "each rated home may achieve to earn the ENERGY STAR" in the first sentence of the document.

				• The second sentence of the document which reads “The Certification Process provides flexibility to select a custom combination of measures through energy modeling that achieves the required ENERGY STAR HERS Index Target” will be removed. • The third sentence of the document will be refined and will read: “Note that, in addition to meeting the ENERGY STAR HERS Index Target, homes shall also meet all mandatory Requirements for All Certified Homes in Exhibit 2 of the ENERGY STAR Certified Homes Version 3 National Program Requirements.” • The second paragraph, which introduces the steps for calculating the ENERGY STAR HERS Index Target, will be refined as follows: “A RESNET-accredited Home Energy Rating software program shall automatically determine (i.e., without relying on a user-configured ENERGY STAR Reference Design) this target for each rated home using the following procedure:” • The first two sentences of step 1 will be reworded and condensed as follows: “The software shall configure the ENERGY STAR Reference Design Home in accordance with Exhibit 2, The Expanded ENERGY STAR Reference Design Definition, and calculate its associated numerical HERS index value.” The remaining language will be removed from Step 1. • The phrase “the software shall” will be inserted before all three instances of the word “calculate” in steps 2 and 3. Step 4 will be removed.
00637	**09/01/2017**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Elimination of Size Adjustment Factor in HERS Index Target Procedure**
				Issue: Partners in Texas have expressed difficulty meeting the Version 3.1 ENERGY STAR HERS Index Target for Climate Zone 3, particularly for homes impacted the Size Adjustment Factor (SAF). The Version 3.1 ENERGY STAR HERS Index Targets in Climate Zone 3 are already among the most aggressive, even for homes not impacted by the SAF. While Partners indicated that a minority of homes are impacted by the SAF, for those that are impacted, Partners have expressed that few additional cost-effective measures are available at this time to compensate for the SAF.
				Resolution: In order to address the challenges Partners have had in meeting the ENERGY STAR HERS Index Target, while not significantly impacting energy savings, the SAF will be removed. For consistency, this change will be applied to all Climate Zones. As a result of removing the SAF, Exhibit 1: Benchmark Home Size and associated Footnotes 1 through 3 will be deleted. Additionally, Exhibit 2: Expanded ENERGY STAR Reference Design Definition will be relabeled Exhibit 1. Finally, the language from Step 1 and Step 3 will be condensed as follows:

				"A RESNET-accredited Home Energy Rating software program shall automatically determine (i.e., without relying on a user-configured ENERGY STAR Reference Design) this target for each rated home. This shall be done by configuring the ENERGY STAR Reference Design Home in accordance with Exhibit 1, the Expanded ENERGY STAR Reference Design Definition, and calculating its associated HERS Index value. This value, rounded to the nearest whole number, shall equal the ENERGY STAR HERS Index Target."
00708	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 08)**	**Clarification**	**References updated to latest RESNET standard and various parameters clarified**
				Issue: This document contains numerous references to "RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Hence, the current references are outdated. In addition, several parameters require clarification as to how they should be configured in the ENERGY STAR Reference Design Home.
				Resolution: References to "RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard" will be updated to the ANSI-standard version. In addition, references to specific sections of the standard will be replaced with more general references to prevent outdated references as the standard continues to be revised. Finally, the configuration of Service Water Heating Systems and Internal Gains will be clarified. To reflect these clarifications, the following edits will be made: • In Step 2: The first sentence after the equation will read as follows: "For the purposes of this step, the software shall calculate the number of bedrooms and the CFA of the home to be built in accordance with the definitions in ANSI / RESNET / ICC Std. 301 with the following exception…" • In the Glazing: Interior Shade Coefficient Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301" • In the Service Water Heating Systems: Use (Gallons per Day) Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for reduced usage resulting from the dishwasher specified in the Lighting, Appliances, & Internal Gains Section." In addition, this will be associated with a new Footnote as follows: "That is to say, representative of standard-flow plumbing fixtures, reference clothes washer gallons per day, standard distribution system water use effectiveness, a hot water piping ratio of 1.0, no pipe insulation, and no drainwater heat recovery." • Service Water Heating Systems: Tank Temperature Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301".

				• Thermostat: Temperature Setpoints Section: "Same as Energy Rating Reference Home, but with offsets for a programmable thermostat, as defined by ANSI / RESNET / ICC Std. 301" • Lighting, Appliances, & Internal Gains: Internal Gains Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for adjustments for the lighting, refrigerator, dishwasher, and ceiling fans specified in this Section." • Internal Mass Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301" • Footnote 1: The final sentence will read as follows: "The full conditioned floor area should be used when rating the home (e.g., determining compliance with duct leakage requirements)." • Footnote 2: The second sentence will read as follows: "A bedroom is defined by ANSI / RESNET / ICC Std. 301-2014 as a room or space 70 sq. ft. or greater size, with egress window and closet, used or intended to be used for sleeping." • Footnote 11: This Footnote contained the reference to the outdated version of the RESNET standard and will be deleted. In addition to these edits, a new Footnote will be associated with Step 2 and all parameters included above, as follows: "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter."
00714	**09/01/2018**	**HERS Index Target Procedure for National Program Requirements (Version 3.1, Rev. 08)**	**Clarification**	**References updated to latest RESNET standard and various parameters clarified**
				Issue: This document contains numerous references to "RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Hence, the current references are outdated. In addition, several parameters require clarification as to how they should be configured in the ENERGY STAR Reference Design Home.
				Resolution: References to "RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard" will be updated to the ANSI-standard version. In addition, references to specific sections of the standard will be replaced with more general references to prevent outdated references as the standard continues to be revised. Finally, the configuration of Service Water Heating Systems and Internal Gains will be clarified. To reflect these clarifications, the following edits will be made: • In the Glazing: Interior Shade Coefficient Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301"

				• In the Service Water Heating Systems: Use (Gallons per Day) Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for reduced usage resulting from the dishwasher specified in the Lighting, Appliances, & Internal Gains Section." In addition, this will be associated with a new Footnote as follows: "That is to say, representative of standard-flow plumbing fixtures, reference clothes washer gallons per day, standard distribution system water use effectiveness, a hot water piping ratio of 1.0, no pipe insulation, and no drainwater heat recovery." • Service Water Heating Systems: Tank Temperature Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301". • Thermostat: Temperature Setpoints Section: "Same as Energy Rating Reference Home, but with offsets for a programmable thermostat, as defined by ANSI / RESNET / ICC Std. 301" • Lighting, Appliances, & Internal Gains: Internal Gains Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for adjustments for the lighting, refrigerator, dishwasher, and ceiling fans specified in this Section." • Internal Mass Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301". • Footnote 10: This Footnote contained the reference to the outdated version of the RESNET standard and will be deleted. In addition to these edits, a new Footnote will be associated with all parameters included above, as follows: "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter."
00553	**09/22/2015**	**County-Level Design Temperature Reference Guide**	**Clarification**	**Update to Brunswick County, NC's Design Temperature Limits**
				Issue: A partner has questioned whether the design temperature limits assigned to Brunswick County, North Carolina, are representative of the county. They have noted that the two weather stations located within the county are in Frying Pan Shoals. This shoal, also known as a sandbar, is located offshore and, therefore, has a significantly different climate than the inland parts of the county. For example, four weather stations in adjacent coastal counties have cooling design temperatures of 90-91 °F, whereas the two stations at Frying Pan Shoals have a temperature of 84 °F. As a result, the partner believes that the design temperature limits assigned to this county are not representative of the county as a whole.
				Resolution: Because the weather stations at Frying Pan Shoals are not representative of the county as a whole, based on the design temperatures of adjacent coastal counties, these weather stations will be excluded from consideration. In their place, the "Wilmington

				International Airport North Carolina" weather station and the "Wilmington NC" weather station were selected as the representative locations for the cooling and heating design temperature limits, respectively. As a result, Brunswick County's heating and cooling design temperature limits will be updated accordingly and will equal 28 °F and 91 °F, respectively.
00242	**09/10/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 05)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade [2,3]; OR • Dwelling units 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 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." A footnote will be added to define the term "dwelling unit" that reads: "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." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00361	**06/01/2013**	**County-Level Reference Design**	**Refinement**	**Qualifying Homes Section – Regional program requirements**
				Issue: The Qualifying Homes Section states that: "Homes may earn the ENERGY STAR using the following ENERGY STAR Prescriptive Path or Performance Path in all states except those

		Climate Zones 1-8 (Version 3, Rev. 06)		for which regional program requirements have been developed. See EPA's Web site for the latest list." Because the states with regional program requirements are not explicitly stated, partners may unknowingly use the County-Level Reference Design when regional program requirements exist for their state.
				Resolution: To ensure partners do not unknowingly use the County-Level Reference Design when regional program requirements exist for their state, the last paragraph in the Qualifying Homes Section will be revised as follows: "Homes may earn the ENERGY STAR using the following ENERGY STAR Prescriptive Path in all locations except CA, FL, GU, HI, MA, PR, and the Pacific Northwest, for which regional program requirements have been developed. 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."
00362	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 3 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home. To clarify this intent, the following sentence will be added to the end of Footnote 10: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00363	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Clarification**	**Prescriptive Path - Below-grade wall area for a home with multiple basement spaces**
				Issue: Partners have asked how to determine whether at least half of the basement wall area is below grade for a home with multiple basement spaces.
				Resolution: For a home that has multiple basement spaces, the gross surface area of the walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the

				methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.
00364	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Comment**	**Prescriptive Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00159	**01/15/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 04)**	**Clarification**	**Partnership, Training, and Credentialing Requirements**
				Issue: Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.
				Resolution: A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the "ENERGY STAR Performance Path" section and read as follows: "Partnership, Training, and Credentialing Requirements Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying 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. • 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.resnet.us/energystar."
00243	**09/10/2012**	**County-Level Reference Design**	**Refinement**	**Partnership, Training, and Credentialing – Rater and Field Inspector training**
				Issue: EPA has identified that the website provided for Raters and Field Inspectors' Version 3 Training requirements is out of date.

		Climate Zones 1-8 (Version 3, Rev. 05)		**Resolution:** Raters and Field Inspectors can find Version 3 Training requirements at www.energystar.gov/newhomestraining. This website will be provided in place of the out of date website.
00162	**01/15/2012**	**County-Level Reference Design, Climate Zone 1-8 (Version 3, Rev. 04)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "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. Qualification shall only 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). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00083	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Change**	**Program eligibility – Harmonizing requirements with Multifamily High-Rise Program**
				Issue: EPA has recently launched its ENERGY STAR Multifamily High Rise Program. The eligibility requirements of the ENERGY STAR for New Homes Program need to be harmonized with the eligibility requirements of that new program.
				Resolution: The eligibility requirements on page one of the County-Level Reference Design documents will be revised as follows: "To earn the ENERGY STAR under the Version 3 Guidelines, homes must be one of the following: • "Single family homes; OR

				• "Units in any multifamily building with 4 units or fewer; OR • "Units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • "Units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building.[4] When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. "Units in multifamily buildings that are not eligible for the ENERGY STAR through the New Homes program may be eligible to qualify through the Multifamily High Rise Program. The associated footnotes are as follows: 1. "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. 2. "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. 3. "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. 4. "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 qualify for 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."
00084	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Change**	**Determining gross basement wall area** **Issue:** Partners have expressed difficulty determining the percentage of gross basement wall area that is below grade when walls are not in contact with either the ground or outdoor ambient air. This occurs, for example, when a wall separates the basement spaces of adjacent townhome units.

				Response: EPA intended to exclude walls that are not in contact with either the ground or outdoor ambient air because of the difficulty of determining the area of the above-grade and below-grade portions of those walls. The beginning of Footnote 4 will be revised to read as follows: "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)."
00085	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Change**	**Basement exclusion from Size Adjustment Factor**
				Issue: Partners have asked EPA to allow bedrooms in basements to be included when determining the Benchmark Home Size. In the rare instances where the majority of bedrooms in a home are located in the basement, excluding these bedrooms can result in the application of a significant Size Adjustment Factor, resulting in a meaningfully more stringent ENERGY STAR HERS Index Target.
				Response: To eliminate this hardship for these homes, EPA will now allow all bedrooms in the home to be counted when determining the Benchmark Home Size, regardless of location. This policy change will result in the same or less stringent target for all Partners. Note that no change is being made to EPA's policy of excluding floor area in basements with at least half of the gross surface area of the exterior walls below grade. That is to say, 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 when determining a home's Benchmark Home Size, Size Adjustment Factor, and eligibility to use the Prescriptive Path. • Step 1 of the County-Level Reference Design documents will be revised as follows: "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. 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. If the CFA of the home to be built exceeds the CFA of the Benchmark Home, then the Performance Path shall be used. See www.energystar.gov/newhomesguidelines for more information on the Performance Path. • Footnote 4 will be revised as follows: "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 this change 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). If a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used."
00086	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Refinement**	**ENERGY STAR Prescriptive Path errata**
				Issue: EPA has identified a minor typographical error in Step 1 of the Prescriptive Path in the county-level reference design documents: "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 2." Additionally, "Prescriptive Path" is not consistently capitalized in the county-level reference design documents. Particularly in Footnote 14, this error creates some confusion as to what "prescriptive path" refers to.
				Resolution: The phrase, "to built..." in Step 1 of the Prescriptive Path will be revised to "to be built..." References to the Prescriptive Path have been capitalized throughout the county-level reference design documents.
00161	**01/15/2012**	**County-Level Reference Design, Climate Zone 1-8 (Version 3, Rev. 04)**	**Refinement**	**Prescriptive Path - ENERGY STAR qualified lighting**
				Issue: The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.
				Resolution: To align terminology across programs, and to encourage partners to use ENERGY STAR qualified light fixtures in addition to qualified light bulbs, the Lighting & Appliances section will be revised to read in part: "ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations."
00365	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Refinement**	**Exhibit 1 – Redundant Section header and accompanying text removed**
				Issue: Partners have noted that the Section header and text accompanying Exhibit 1 contain information already found in the Prescriptive Path and title of Exhibit 1.
				Resolution: The Section header (i.e., "Mandatory Requirements for All ENERY STAR Qualified Homes") and accompanying text (i.e., "As noted in the Prescriptive Path, all ENERGY STAR Qualified New Homes must meet the requirements of the checklists in Exhibit 1") will be removed to eliminate redundancy.
00366	**06/01/2013**		**Change**	**Exhibit 1 & Footnote 11 - Removal of Indoor airPLUS Checklist as compliance option**

		County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)		**Issue:** Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 1 as will Footnote 11, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00244	**09/10/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 05)**	**Refinement**	**Exhibit 2 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 2, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 2. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from the Prescriptive Path section.
00160	**01/15/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 04)**	**Change**	**Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: To address partners' difficulties meeting the total duct leakage limit, the total duct leakage limit will be revised as follows: "Total duct leakage ≤ 8 CFM25 per 100 sq. ft. of conditioned area." Because the total duct leakage threshold is not being changed for homes with less than 1,200 sq. ft. of conditioned floor area, there is no different threshold for those homes. Footnote 22 will be shortened to only include guidance related to duct leakage testing protocols: "Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol only after all components of the system have been installed (e.g., air

				handler and register grilles). Leakage limits shall be assessed on a per-system, rather than per-home, basis." Remaining guidance related to testing duct leakage to the outside will be consolidated in Footnote 23, which will read as follows: "For homes that have ≤ 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area. 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. Alternatively, testing of duct leakage to the outside can be waived 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."
00367	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Refinement**	**Exhibit 3 - Minimum Water Heater Efficiencies by Fuel Type and Tank Size**
				Issue: Partners have noted that the minimum water heater efficiencies for various fuel types and tank sizes are currently located in a table in Footnote 21. Partners may overlook these required minimum efficiencies because they are listed in a Footnote.
				Resolution: To ensure water heaters are meeting the minimum efficiency requirements by fuel type and tank size, the table containing this information in Footnote 21 will be moved to the Water Heater Section of Exhibit 3.
00368	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Clarification**	**Exhibit 3 – Infiltration rate**
				Issue: Partners have noted that the requirement for maximum allowable infiltration does not indicate that envelope leakage shall be determined by a Rater using a RESNET- approved testing protocol.
				Resolution: To ensure that envelope leakage is being determined by a Rater using a RESNET-approved testing protocol, the following Footnote will be added to the maximum allowable infiltration rate in the Envelope Section of Exhibit 3: "Envelope leakage shall be determined by a rater using a RESNET-approved testing protocol."
00245	**09/10/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 05)**	**Clarification**	**Footnote 9 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 9, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 9 will be revised as follows:

				"The term 'Rater' refers to the person completing the third-party inspections required for qualification. 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."
00087	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Refinement**	**Footnote 10 – Slab framing systems**
				Issue: Partners have asked EPA to define the phrase "slab framing system" in Footnote 10 of the County-Level Reference Design documents.
				Response: This footnote will be revised to read as follows: "Insulation shall be verified by a Rater to achieve Grade I installation as defined in the RESNET Standards, except for ceiling, wall, and floor assemblies with continuous rigid insulation sheathing. For such homes, Grade II installation is acceptable for the cavity insulation only if the rigid insulation sheathing meets or exceeds the following levels: R-3 in Climate Zones 1 to 4; R-5 in Zones 5 to 8."
00246	**09/10/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 05)**	**Refinement**	**Footnote 11 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 11.
				Resolution: The word "were" in Footnote 11 will be revised to "where".
00088	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Refinement**	**Footnotes 11d and 12d – Insulation levels for steel-frame assemblies**
				Issue: Partners have advised that the county-level reference design documents reference erroneous guidance contained in the 2009 IECC related to the UA calculation for a steel-frame envelope assembly.
				Resolution: Footnote 12d in the County-Level Reference Designs for Climate Zones 1-3 and Footnote 11d in the County-Level reference Designs for Climate Zones 4-8 have been revised to read as follows: "…The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method."
00247	**09/10/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 05)**	**Clarification**	**Footnote 20 – Allowance to use integrated/combined hot water products**
				Issue: Partners have asked if a single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in an ENERGY STAR Certified Home.
				Resolution: A single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating

				and domestic hot water shall be used. In contrast, a tankless coil water heater, where domestic water flows through a coil installed in the space heating system, is not permitted, due to the low efficiency of this system type. To clarify the allowable integrated domestic hot water and space heating systems, Footnote 20 will be revised as follows: “Domestic hot water systems that are integrated with the space-heating system are permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating and domestic hot water shall be used. A ‘tankless coil water heater’, where domestic water flows through a coil installed in the space-heating system, is not permitted.”
00369	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Clarification**	**Footnote 22 - Applicability of thermostats with ‘Adaptive Recovery’ technology**
				Issue: Partners have asked if Footnote 22, which states: “For homes with heat pumps, the thermostat shall have ‘Adaptive Recovery’ technology to prevent the excessive use of electric backup heating,” is applicable to both air-source and ground-source heat pumps.
				Resolution: The requirement for thermostats with ‘Adaptive Recovery’ technology applies to any heat pump with an electric resistance heating element used to supplement the capacity of the heat pump, regardless of whether the heat pump is air-source or ground-source. Note that such a thermostat is not required for a home with a heat pump that only includes an electric resistance heating element used during compressor failure (i.e., emergency heat). To clarify when this requirement applies, Footnote 22 will be revised as follows: "For homes with heat pumps that contain an electric resistance heating element used to supplement the capacity of the heat pump, the thermostat shall have ‘Adaptive Recovery’ technology to prevent excessive use of the heating element."
00163	**01/15/2012**	**County-Level Reference Design, Climate Zone 1-3 (Version 3, Rev. 04)**	**Clarification**	**Footnote 17d - Minimum insulation requirements when using a total UA calculation**
				Issue: Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that “while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated.”
				Resolution: To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 17d will be revised as follows: “…Also, note that while ceiling and slab insulation

				can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated...”
00423	**09/23/2013**	**County-Level Reference Design Climate Zones 1-3 (Version 3, Rev. 07)**	**Change**	**Footnote 18d - Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Both the Performance Path and Prescriptive Path already define minimum performance limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than these limits from contributing to the total UA of the home.
				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define the limits for fenestration U-factor and SHGC, fenestration that does exceed these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 18d of the will be revised as follows: “An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method.”
00089	**07/25/2011**	**County-Level Reference Design: Climate Zone 4 (Version 3, Rev. 03)**	**Refinement**	**Climate Zone 4 Reference Design errata**
				Issue: Partners have noted that the Revision 02 County Level Reference Design for Climate Zone 4 contains several inconsistencies with the National ENERGY STAR Reference Design requirements.
				Response: The window U-value, window SHGC, and cooling efficiency requirements will be aligned with the national guidelines as follows: • Windows: ≤ 0.32 U-Value; 0.40 SHGC

				• If total window-to-floor area >15%, then U-values or SHGCs adjusted as outlined in Footnote 14. • Cooling equipment: ≥ 13 SEER AC; OR • ≥ 8.5 HSPF / 14.5 SEER / 12 EER ENERGY STAR qualified air-source heat pump with electric backup; OR • ≥ 8.2 HSPF / 14.5 SEER / 12 EER ENERGY STAR qualified air-source heat pump with ENERGY STAR qualified dual-fuel backup; OR • Ground source heat pump, any product type, ENERGY STAR qualified.
00164	**01/15/2012**	**County-Level Reference Design, Climate Zone 4-8 (Version 3, Rev. 04)**	**Clarification**	**Prescriptive Path – Heating equipment efficiencies**
				Issue: The minimum efficiency requirements for ENERGY STAR qualified gas furnaces manufactured after 02/01/2012 will increase from 90 AFUE to 95 AFUE for the U.S. North region, defined as states with population-weighted Heating Degree Days ≥ 5000. The ENERGY STAR Product Specification for Furnaces, Version 3.0 specifies which states are included in the U.S. North region. The ENERGY STAR Reference Design defined in Exhibit 1 currently requires an ENERGY STAR qualified 90 AFUE furnace in Climate Zones 4 through 8. Partners have asked how this will be modified to account for the new ENERGY STAR product specification for furnaces.
				Resolution: The ENERGY STAR for Homes guidelines will not be modified at this time to align with the more stringent efficiency level required in the new ENERGY STAR product specification for furnaces. The minimum efficiency level specified for gas furnaces in Climate Zones 4 through 8 under the Prescriptive Path and Exhibit 2 of the ENERGY STAR HERS Index Target Procedure will remain at 90 AFUE. The minimum requirement for gas furnaces in Climate Zones 4 through 8 in Exhibit 1 of the National Program Requirements will be revised by removing the phrase "ENERGY STAR qualified".
00165	**01/15/2012**	**County-Level Reference Design, Climate Zone 4-8 (Version 3, Rev. 04)**	**Clarification**	**Footnote 16d - Minimum insulation requirements when using a total UA calculation**
				Issue: Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that "while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated."
				Resolution: To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 16d will be revised as follows: "…Also, note that while ceiling and slab insulation

				can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated..."
00424	**09/23/2013**	**County-Level Reference Design Climate Zones 4-8 (Version 3, Rev. 07)**	**Change**	**Footnote 17d - Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Both the Performance Path and Prescriptive Path already define minimum performance limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than code from contributing to the total UA of the home.
				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define minimum performance limits for fenestration U-factor and SHGC, fenestration that does exceed these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 17d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method."
00090	**07/25/2011**	**National Program Requirements (Version 2.5, Rev. 03)**	**Clarification**	**Exhibit 2, Footnote 3 – Timeline for low-income projects**
				Issue: Partners have asked EPA to clarify several aspects of the extended Version 2 timeline for low-income projects financed through low-income housing agencies, including the following: • What kind of organization qualifies as a "low-income housing agency"? • What kind of financial support qualifies as "funding"? • How should builders and developers document when funding applications are received by funding agencies?

				• What is the overall intent of the extended Version 2 timeline for this kind of project?
				Response: By "low-income housing agency," EPA means any entity that provides public funding to nonprofit builders and developers for the construction of housing projects specifically for low-income tenants. By "funding," EPA means public funding such as public grants or Low Income Housing Tax Credit (LIHTC) funds. The funding must be critical to the project financing, such as financing land acquisition, infrastructure, or construction. Funding intended for noncritical activities, such as for providing mortgage financing to homebuyers, does not qualify for the extended timeline. It is the responsibility of the funding applicant (the developer and builder) to keep on file written proof that they applied for public funds for use in constructing a low-income housing project to be ENERGY STAR qualified under Version 2. This documentation should identify the funding agency and the date when the funding application was received by the funding agency. This could be a copy of the funding application itself that has been date stamped by the funding agency. If there is no documentation that indicates when the funding application was received by the funding agency, there should at least be documentation that indicates when the funding application was sent to the funding agency by the funding applicant. It is the responsibility of the developer and builder to make this documentation available to the Rater (as well as to EPA upon request) so the Rater can verify whether or not the housing project qualifies for this exemption to the national Version 3 implementation timeline. Also, the builder or developer is responsible for providing to the Rater (as well as EPA upon request) a copy of documentation that shows that the funding was awarded prior to completion of the housing project. The intent of the low-income housing exemption to the national Version 3 implementation timeline is to give nonprofit low-income housing builders and developers additional time to build homes to earn the ENERGY STAR label under Version 2 with the understanding that low-income housing projects typically require some form of public funding in order to be constructed and that the process for obtaining public funding typically adds time to the build-out timeline. EPA decided to provide this exemption based on when the funding application was received as opposed to when the application was approved or when funding was actually received in order to avoid penalizing nonprofit low-income housing developers and builders for delays caused by the funding agency in reviewing and approving funding applications.
00091	**07/25/2011**	**National Program Requirements (Version 2.5, Rev. 03)**	**Comment**	**Performance Path – Exhaust fan requirements**
				Issue: Partners have asked whether ENERGY STAR labeled exhaust fans must be used in homes qualified under the Performance Path in ENERGY STAR Version 2.5.
				Resolution: When qualifying a home under Version 2.5 using the Performance Path, ENERGY STAR labeled exhaust fans are not required.
00720	**09/01/2018**		**Change**	**Elimination of plant-certification pathway for modular homes**

		California Program Requirements (Version 3.2, Rev. 08)		**Issue:** Currently, there are two paths for modular homes to earn ENERGY STAR certification: • A Rater-verification path, where a Rater is responsible for verifying all program requirements. This may require the Rater to complete inspections in the plant for features that are concealed prior to shipment, as well as complete inspections on-site. • A plant-certification path, where a Quality Assurance Provider (QAP) certifies that the plant has processes in place to consistently incorporate ENERGY STAR requirements into their production. In this path, the plant is responsible for the verification of some items, while a Rater is responsible for completing the verification process on-site. The existence of two pathways increases the complexity of the program. Furthermore, in the case of the plant-certification path, the division of verification responsibilities between two different parties has occasionally created confusion. EPA evaluated the use of the plant-certification path by partners, and found that only 36 homes were certified by three plants using this path in 2016. Upon conducting outreach with these three partners, none felt strongly about maintaining this path.
				Resolution: The plant-certification path for modular homes will be eliminated because it is not frequently utilized and may be causing confusion among partners. To further clarify the remaining certification process for modular homes, the Eligibility Requirements section will be updated to explicitly encompass modular homes and the ENERGY STAR Certification Process section will be updated to indicate that 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, the Version of the program requirements applicable to a modular home, which is currently based upon the home's "sale date", will be changed to be based upon the "permit date", to align with the policy for other site-built homes. To reflect these changes, the first line of the "Eligibility Requirements" section will be revised as follows: "The following site-built or modular homes are eligible to earn the ENERGY STAR:" The following sentence will be added to Step 4 of the ENERGY STAR Certification Process section: "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." And a new Footnote, Footnote 1, will be added that reads as follows: "A modular home is a prefabricated home that is made of multiple modules or sections that are manufactured and substantially assembled in a manufacturing plant. These pre–built sections are transported to the building site and constructed by a builder to meet all applicable building codes for site–built homes."

00723	**09/01/2018**	**California Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Elimination of plant-certification pathway for modular homes**
				Issue: Currently, there are two paths for modular homes to earn ENERGY STAR certification: • A Rater-verification path, where a Rater is responsible for verifying all program requirements. This may require the Rater to complete inspections in the plant for features that are concealed prior to shipment, as well as complete inspections on-site. • A plant-certification path, where a Quality Assurance Provider (QAP) certifies that the plant has processes in place to consistently incorporate ENERGY STAR requirements into their production. In this path, the plant is responsible for the verification of some items, while a Rater is responsible for completing the verification process on-site. The existence of two pathways increases the complexity of the program. Furthermore, in the case of the plant-certification path, the division of verification responsibilities between two different parties has occasionally created confusion. EPA evaluated the use of the plant-certification path by partners, and found that only 36 homes were certified by three plants using this path in 2016. Upon conducting outreach with these three partners, none felt strongly about maintaining this path.
				Resolution: The plant-certification path for modular homes will be eliminated because it is not frequently utilized and may be causing confusion among partners. To further clarify the remaining certification process for modular homes, the Eligibility Requirements section will be updated to explicitly encompass modular homes and the ENERGY STAR Certification Process section will be updated to indicate that 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, the Version of the program requirements applicable to a modular home, which is currently based upon the home's "sale date", will be changed to be based upon the "permit date", to align with the policy for other site-built homes. To reflect these changes, the first line of the "Eligibility Requirements" section will be revised as follows: "The following site-built or modular homes are eligible to earn the ENERGY STAR:" The following sentence will be added to Step 4 of the ENERGY STAR Certification Process section: "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." And a new Footnote, Footnote 1, will be added that reads as follows: "A modular home is a prefabricated home that is made of multiple modules or sections that are manufactured and substantially assembled in a manufacturing plant. These pre–built sections

				are transported to the building site and constructed by a builder to meet all applicable building codes for site–built homes.”
00673	**06/29/2018**	**California Program Requirements (Version 3.2, Rev. 08)**	**Change**	**Determining program implementation date in California**
				Issue: Partners in California have requested a change in the date used to determine which program version a home should be certified under in that state. Currently, the program requirements indicate that the ‘permit date’ is the date to be used to determine which version to use to certify a home, where ‘permit date’ is defined as either the date that the permit was issued or the date of the contract on the home. However, the permitting process in California creates the following challenges with this approach for tract housing: • Because the efficiency features for an entire tract of housing, which may be developed over 18-24 months, are determined all at once prior to the development of the first lot, implementing a new version of ENERGY STAR for a subset of homes in the tract could require time-intensive and expensive re-approval of the plans. Because construction permits in California expire relatively quickly, typically 120-180 days after the issue date, and due to the high cost of pulling construction permits in the state, builders cannot simply pull all construction permits upon approval of the plans to lock-in the required program version, as is often done in jurisdictions outside the state.
				Resolution: To address the challenges listed above, the criteria for determining the implementation date in California will be changed such that when a jurisdiction approves a home plan and its efficiency features for use on a specific lot or tract, the date that this approval occurs will be used to determine the version required to certify a home constructed with that plan and efficiency features. To reflect this change, Footnote 8 will be changed as follows: “This Revision of the California Program Requirements is required to certify all homes with a plan approval date and permit issue date after 07/01/2018, but is allowed to be used for any home permitted or completed prior to this date. The ‘plan approval date’ is the date that a jurisdiction approves a home plan and its efficiency features for use on a specific lot or tract. 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.”
00769	**06/29/2018**	**California Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Determining program implementation date in California**
				Issue: Partners in California have requested a change in the date used to determine which program version a home should be certified under in that state. Currently, the program requirements indicate that the ‘permit date’ is the date to be used to determine which version to use to certify a home, where ‘permit date’ is defined as either the date that the permit was

				issued or the date of the contract on the home. However, the permitting process in California creates the following challenges with this approach for tract housing: • Because the efficiency features for an entire tract of housing, which may be developed over 18-24 months, are determined all at once prior to the development of the first lot, implementing a new version of ENERGY STAR for a subset of homes in the tract could require time-intensive and expensive re-approval of the plans. Because construction permits in California expire relatively quickly, typically 120-180 days after the issue date, and due to the high cost of pulling construction permits in the state, builders cannot simply pull all construction permits upon approval of the plans to lock-in the required program version, as is often done in jurisdictions outside the state.
				Resolution: To address the challenges listed above, the criteria for determining the implementation date in California will be changed such that when a jurisdiction approves a home plan and its efficiency features for use on a specific lot or tract, the date that this approval occurs will be used to determine the version required to certify a home constructed with that plan and efficiency features. To reflect this change, Footnote 9 will be changed as follows: "This Revision of the California Program Requirements is required to certify all homes with a plan approval date and permit issue date after 04/01/2016, but is allowed to be used for any home permitted or completed prior to this date. The 'plan approval date' is the date that a jurisdiction approves a home plan and its efficiency features for use on a specific lot or tract. 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."
00659	**04/11/2018**	**California Program Requirements (Version 3.2, Rev. 08)**	**Clarification**	**On-site power generation permitted to satisfy code, but not the above-code performance target**
				Issue: Partners have noted that Step 2 of the ENERGY STAR Certification Process states in part that, "on-site power generation may not be used to meet the performance target" of the program. While the program requires its performance target to be met using efficiency alone, this has created some confusion in California, which allows photovoltaics to be used to partially satisfy its energy code, the 2016 Building Energy Efficiency Standards. Builder partners have provided feedback that if they were required to first remove photovoltaics used to satisfy code and then compensate for this using only efficiency measures, plus add additional efficiency measures to meet the above-code performance target, the program may not be cost-effective for their homes.
				Resolution: First, the program will affirm that on-site power generation may not be used to meet the Delta EDR performance target. Compliance must be demonstrated using the EDR

				score that excludes photovoltaics. The EDR pathway provides a more generous credit for photovoltaics than under the Compliance Total pathway, and also rewards incremental increases in photovoltaics. Second, the program will clarify that while on-site power generation may not be used to meet the above-code Compliance Total performance target, it is allowed to be used to satisfy code requirements in accordance with the 2016 Building Energy Efficiency Standards. Unlike the EDR pathway, this pathway provides a smaller fixed credit for photovoltaics and does not reward incremental increases. While the final home may include both PV and efficiency measures, the resulting home will be better than code and will utilize no more than the code-permitted amount of photovoltaics. Because Raters will not be able to necessarily assess the sequence in which photovoltaics and efficiency measures were added, compliance with the Compliance Total pathway will be demonstrated by simply ensuring that the home meets the performance target of the program. To reflect this clarification, Step 1 will be revised as follows: a) A Delta Energy Design Rating (Delta EDR) of ≥3 points, as determined by a CEC-approved software program. On-site power generation may not be used to meet the performance target and must be demonstrated using the EDR score that excludes photovoltaics. b) A Compliance Total with ≥10% savings above the Compliance Total of the Standard Design corresponding to the home, as determined by a CEC-approved software program. On-site power generation may not be used to meet the above-code performance target, though it is permitted to be used to satisfy code, in accordance with the 2016 Building Energy Efficiency Standards." Step 2 will be revised by removing the last sentence: "Furthermore, on-site power generation may not be used to meet the performance target."
00721	**09/01/2018**	**California Program Requirements (Version 3.2, Rev. 08)**	**Clarification**	**Explicit requirement for homes to be registered and receive rating**
				Issue: While implied, there is currently no language in the ENERGY STAR Certification Process section that explicitly requires partners to register homes in California with a CEC-approved HERS Provider. This step is critical to ensure that the home is encompassed by the quality assurance protocols defined by that oversight organization.
				Resolution: In order to ensure that ENERGY STAR certified homes in California are encompassed by an oversight organization's quality assurance protocols, ENERGY STAR Certified Homes will be explicitly required to receive a rating and be registered with a CEC-approved HERS Provider. The first paragraph under Step 4 of the ENERGY STAR Certification Process will be updated as follows: "4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with Data Input requirements and On-Site Inspection

				Procedures for California HERS Ratings. Finally, register the rated home with a CEC-approved HERS Provider. The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC Design Report.”
00722	**09/01/2018**	**California Program Requirements (Version 3.2, Rev. 08)**	**Refinement**	**Effective Date Section – Revised structure and format of Implementation Timeline**
				Issue: The Effective Date Section varies in structure across program requirements, creating potential confusion. In addition, the implementation timeline information contained within the Exhibit in this Section does not consistently document prior and future Versions of the program, and does not currently incorporate the implementation timelines of both Versions and Revisions.
				Resolution: To help ensure partners are aware of the implementation timeline(s) applicable to the homes that they certify, the Effective Date section will be revised to make the overall structure consistent. Furthermore, the Exhibit containing the implementation timelines will be revised to include the Version(s) and Revision(s) that was applicable for the two years prior to the date of publication, as well as all future Versions and Revisions that are applicable to each location. With this refinement to the Exhibit, the first sentence of Footnote 8 will be removed as the revised Implementation Timeline contains this information. These refinements will be reflected as follows: **Effective Date** To determine the program Version and Revision that a home is required to be certified under, look up the plan approval date and permit issue date of the home in Exhibit 2. Program requirements for other locations can be found at www.energystar.gov/newhomesrequirements. This Exhibit contains all implementation timelines applicable on or after September 1, 2016. Implementation timelines applicable prior to this date can be obtained by contacting energystarhomes@energystar.gov. **Exhibit 2: ENERGY STAR Certified Homes Implementation Timeline for California**

State / Territory	Homes With Plan Approval Date and Permit Issue Date On or After This Date Must Meet the Adjacent Version & Revision	Version	Revision
CA	04-01-2016	California v3.1	Rev. 08
	07-01-2018	California v3.2	Rev. 08

						01-01-2019	California v3.2	Rev. 09

00725 | **09/01/2018** | **California Program Requirements (Version 3.1, Rev. 08)** | **Refinement**

Effective Date Section – Revised structure and format of Implementation Timeline

Issue: The Effective Date Section varies in structure across program requirements, creating potential confusion. In addition, the implementation timeline information contained within the Exhibit in this Section does not consistently document prior and future Versions of the program, and does not currently incorporate the implementation timelines of both Versions and Revisions.

Resolution: To help ensure partners are aware of the implementation timeline(s) applicable to the homes that they certify, the Effective Date section will be revised to make the overall structure consistent. Furthermore, the Exhibit containing the implementation timelines will be revised to include the Version(s) and Revision(s) that was applicable for the two years prior to the date of publication, as well as all future Versions and Revisions that are applicable to each location. With this refinement to the Exhibit, the first sentence of Footnote 9 will be removed as the revised Implementation Timeline contains this information. These refinements will be reflected as follows:

Effective Date

To determine the program Version and Revision that a home is required to be certified under, look up the plan approval date and permit issue date of the home in Exhibit 2. Program requirements for other locations can be found at www.energystar.gov/newhomesrequirements.

This Exhibit contains all implementation timelines applicable on or after September 1, 2016. Implementation timelines applicable prior to this date can be obtained by contacting energystarhomes@energystar.gov.

Exhibit 2: ENERGY STAR Certified Homes Implementation Timeline for California

State / Territory	Homes With Plan Approval Date and Permit Issue Date On or After This Date Must Meet the Adjacent Version & Revision	Version	Revision
CA	04-01-2016	California v3.1	Rev. 08
	07-01-2018	California v3.2	Rev. 08
	01-01-2019	California v3.2	Rev. 09

00610	**02/23/2017**	**California Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Eligibility Requirements: Criteria for dwelling units in four and five story buildings**
				Issue: Partners have indicated that the eligibility requirements for dwelling units in four and five story buildings sometimes cause unintended challenges. Currently, dwelling units with their own heating, cooling, and hot water systems are generally required to be certified using the ENERGY STAR certified homes program, while units with shared systems must be certified using the ENERGY STAR Multifamily High-Rise program. Because the requirements are substantially different between the two programs, and the decision to use individual or shared systems is sometimes beyond the control of the design team, including the system type in the eligibility requirements is causing the unintended challenges. Dwelling units with shared systems were initially excluded due to a lack of modeling guidance readily available to ENERGY STAR Raters. With the availability of RESNET's Guidelines for Multifamily Ratings, modeling guidance is now available to address the most common central heating, cooling and hot water systems used in multifamily buildings.
				Resolution: To address the challenges that partners are experiencing with the current eligibility requirements, the criteria related to heating, cooling, and hot water systems will be removed from the national program requirements. The eligibility requirement in the fourth bullet of the Eligibility Requirements section will be revised to state: "Dwelling units in multifamily buildings with 4 or 5 stories above-grade where dwelling units occupy 80% or more of the occupiable square footage of the building[4,5]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met." Footnote 4 will be revised to state: "These units may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program. If participating in the Certified Homes Program and the dwelling unit is served by a central heating, cooling, or hot water system, use of the RESNET Guidelines for Multifamily Ratings for modeling the specified central system(s) is recommended." Footnote 5 will be revised to state: "If permitted prior to July 1, 2012, units in multifamily buildings with 4 or 5 stories above-grade may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program, without assessing whether the 80% threshold has been met."
00611	**02/23/2017**	**California Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Determining stories in multifamily buildings with partial floors**
				Issue: Partners have asked whether partial floors in multifamily buildings (e.g., a penthouse, a loft, or a mezzanine) contribute to the total number of stories for the purposes of determining eligibility to participate in the program.
				Resolution: Not all partial floors in multifamily buildings should contribute to the total number of stories for the purposes of determining eligibility to participate in the program.

				First, consistent with the 2012 IRC, a loft or mezzanine is defined as an intermediate level or levels between the floor and ceiling of any story with an aggregate floor area of not more than one-third of the area of the room or space in which the level or levels are located. When determining the number of stories of a multifamily building, a partial floor that meets the definition of a loft or mezzanine shall not count as a story. For example, if the lower floor area of a dwelling unit is 100 sq. ft. and a partial second floor is 25 sq. ft., then the partial second floor is 20% of the total floor area of the dwelling unit (25/125 = 20%). Because 20% is less than 33%, the partial second floor is considered a loft or mezzanine and does not count as a story.
00724	**09/01/2018**	**California Program Requirements (Version 3.1, Rev. 08)**	**Clarification**	**Explicit requirement for homes to be registered and receive rating**
				Issue: While implied, there is currently no language in the ENERGY STAR Certification Process section that explicitly requires partners to register homes in California with a CEC-approved HERS Provider. This step is critical to ensure that the home is encompassed by the quality assurance protocols defined by that oversight organization.
				Resolution: In order to ensure that ENERGY STAR certified homes in California are encompassed by an oversight organization's quality assurance protocols, ENERGY STAR Certified Homes will be explicitly required to receive a rating and be registered with a CEC-approved HERS Provider. The first paragraph under Step 4 of the ENERGY STAR Certification Process will be updated as follows: "4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with Data Input requirements and On-Site Inspection Procedures for California HERS Ratings. Finally, register the rated home with a CEC-approved HERS Provider. The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC Design Report."
00248	**09/10/2012**	**California Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR

				• Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units 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." A footnote will be added to define the term "dwelling unit" that reads: "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." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00167	**01/15/2012**	**California Program Requirements (Version 3, Rev. 01)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's performance meets or exceeds the California 2008 Building Energy Efficiency Standards requirements by 15%. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "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. Qualification shall only 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). Note that, under the Performance Path, a home must still meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00528	**07/01/2015**	**California Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Certifying Homes Section – Addition or renovated space generally not eligible to be certified**
				Issue: Partners have asked if an addition to an existing dwelling unit or a renovated space within an existing dwelling unit is eligible to be ENERGY STAR certified.
				Resolution: An addition or renovated space within an existing structure is not eligible to earn the ENERGY STAR unless it meets all of the following conditions: (1) the addition or renovated space is itself a self-contained dwelling unit, as defined by the 2009 IECC (i.e., a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation), and (2) the addition or renovated space has a separate mailing address from the existing structure.
00529	**07/01/2015**	**California Program Requirements (Version 3, Rev. 04**	**Clarification**	**Certifying Homes Section – Mini-split / multi-split systems serving multiple dwelling units are central systems**
				Issue: Partners have asked whether a mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units should be classified as a central system. The significance of this classification is that dwelling units in multifamily buildings with 4 or 5 stories above-grade must have their own heating, cooling, and hot water systems, separate from other units, to be eligible to participate in the ENERGY STAR Certified Homes program.
				Resolution: A mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units shall be classified as a central system. Therefore, with such a configuration, dwelling units in multifamily buildings with 4 or 5 stories above-grade would not be eligible to participate in the ENERGY STAR Certified Homes program. However, such multifamily buildings would be eligible to be certified through the Multifamily High Rise program, as long as all other eligibility criteria were met.
00530	**07/01/2015**	**California Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Certifying Homes – Shared heating, cooling, & hot water systems**
				Issue: Partners have asked if dwelling units in a multifamily building with 4 units or fewer or with 3 stories or fewer above-grade are eligible to be certified if they share heating, cooling, or water systems.
				Resolution: Dwelling units in any multifamily building with 4 units or fewer, and dwelling units in multifamily buildings with 3 stories or fewer above-grade are eligible to be certified, even if

				they share heating, cooling, and hot water systems, as long as they meet all program requirements.
00168	**01/15/2012**	**California Program Requirements (Version 3, Rev. 01)**	**Clarification**	**Partnership, Training, and Credentialing Requirements**
				Issue: Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.
				Resolution: A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the "ENERGY STAR Performance Path" section and will read as follows: "Partnership, Training, and Credentialing Requirements Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying 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. • 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.resnet.us/energystar."
00249	**09/10/2012**	**California Program Requirements (Version 3, Rev. 02)**	**Refinement**	**Partnership, Training, and Credentialing – Rater and Field Inspector training**
				Issue: EPA has identified that the website provided for Raters and Field Inspectors' Version 3 Training requirements is out of date.
				Resolution: Raters and Field Inspectors can find Version 3 Training requirements at www.energystar.gov/newhomestraining. This website will be provided in place of the out of date website.
00531	**07/01/2015**	**California Program Requirements (Version 3, Rev. 04)**	**Refinement**	**Performance Path and Footnote 8 – Integration of cover page from Inspection Checklists**
				Issue: Partners have provided consistent feedback that the amount of paperwork required to certify a home should be minimized wherever possible.
				Resolution: As part of a larger effort to reduce the amount of paperwork required to certify a home, the cover page of the Inspection Checklists will be deleted and much of the content will be moved to the Program Requirements for the State of California. 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 will be moved from the cover page of the Inspection Checklists to Step 5 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. The only exceptions to this rule are in the Thermal Enclosure System Section of the Rater Field Checklist, where the builder may assume responsibility for verifying a maximum of eight items. This option shall only be used at the discretion of the Rater. When exercised, the builder’s responsibility will be formally acknowledged by the builder signing the checklist for the item(s) that they verified. 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 will be moved from the cover page of the Inspection Checklists to Footnote 8: “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 CEC-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.”
00532	**07/25/2011**	**California Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Performance Path – Modeling requirements for multifamily buildings**
				Issue: Partners have asked if, under the Performance Path, each unit in a multifamily building must be individually modeled to demonstrate compliance with its California ENERGY STAR Savings Target. The current program requirements do not clearly state whether this is a requirement.
				Resolution: Each dwelling unit in a multifamily building must be individually modeled to demonstrate compliance with its California ENERGY STAR Savings Target. EPA is aware of two other approaches that have been used by partners in the past, which will no longer be applicable. The first was to generate a single California ENERGY STAR Savings target using a single model for the entire building. While this approach was never explicitly allowed or encouraged, it was also never prohibited. In the time since this issue was identified, RESNET formed a multifamily high-rise working group to provide recommendations on how the HERS methodology should be applied to this sector. One of the recommendations of the working group was to explicitly prohibit modeling of a multifamily residential building in order to determine the performance target for that building or to apply that building-level performance target to the dwelling units in that building. The second was to model a subset of dwelling units using a policy developed for Version 2 of the national program. This policy allowed modeling to be done on a representative unit, and the resulting efficiency measures used in all other units. This approach was only permitted to be used for Version 2 of the program, and so no longer applies.
00370	**06/01/2013**	**California Program Requirements (Version 3, Rev. 03)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units if the infiltration rate is designed to be below that of the California 2008 Building Energy Efficiency Standards. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the CEC-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00533	**07/01/2015**		**Refinement**	**Exhibit 1: Updated Terminology For Mandatory Requirements**

<table>
<tr><td></td><td></td><td>California Program Requirements (Version 3, Rev. 04)</td><td></td><td>Issue: Partners have provided consistent feedback that the workflow required to certify a home should be improved where possible.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Resolution: As part of a larger effort to improve the workflow required to certify a home, the inspection checklists required to certify a home will, in part, be rearranged and renamed to improve the workflow of the certification process. Exhibit 1 will be updated to reflect the revised program documents and who is responsible for completing each of them, as follows:
<table>
<tr><th>Party Responsible</th><th>Mandatory Requirements</th></tr>
<tr><td>Rater</td><td>• Completion of Rater Design Review Checklist
• Completion of Rater Field Checklist</td></tr>
<tr><td>HVAC System Designer</td><td>• Completion of HVAC Design Report</td></tr>
<tr><td>HVAC Installing Contractor</td><td>• Completion of HVAC Commissioning Checklist</td></tr>
<tr><td>Builder</td><td>• Completion of Water Management System Builder Requirements</td></tr>
</table></td></tr>
<tr><td>00371</td><td>06/01/2013</td><td>California Program Requirements (Version 3, Rev. 03)</td><td>Change</td><td>Exhibit 1 & Footnote 10 - Removal of Indoor airPLUS Checklist as compliance option</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Issue: Partners have noted that EPA’s Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home’s participation in the Indoor airPLUS program, the phrase “(or Indoor airPLUS Verification Checklist)” will be removed from Exhibit 1 as will Footnote 10, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.</td></tr>
<tr><td>00250</td><td>09/10/2012</td><td>California Program Requirements (Version 3, Rev. 02)</td><td>Refinement</td><td>Exhibit 2 - Inclusion of zero bedrooms in Benchmark Home exhibit</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 2, rather than discussing it in the accompanying text.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 2. To avoid redundancy, the phrase “if a home has zero bedrooms with regard to the Benchmark Home Size determination,</td></tr>
</table>

				then the Benchmark Home Size for one bedroom shall be used" will be removed from the Performance Path section.
00782	**09/01/2018**	**California Program Requirements (Version 3.2, Rev. 08)**	**Change**	**Exhibit 2 - Continued Use of Rev. 08 HVAC Design Report**
				Issue: Partners have noted that the HVAC Design Report is only required to be collected once per system design, even if multiple homes are built using this design. Due to the effort required to collect the HVAC Design Report, they have asked whether previously collected Rev. 08 documentation can continue to be used after the release of the next Revision of the program requirements, so long as no aspect of the system design changes.
				Resolution: Because the next Revision of the HVAC Design Report will not require collection of any additional information or impose any new requirements, and will maintain or increase compliance tolerances, a design documented using Rev. 08 of the HVAC Design Report would, by definition, meet the requirements of the next Revision. Therefore, previously collected Rev. 08 HVAC Design Reports will be permitted to be used after the release of the next Revision of the program requirements, so long as the no aspect of the system design changes. To reflect this change, a new Footnote will be added to Exhibit 2, as follows: "Homes certified under Rev. 09 of the program requirements are permitted to use either Rev. 08 or 09 of the National HVAC Design Report."
00783	**09/01/2018**	**California Program Requirements (Version 3.1, Rev. 08)**	**Change**	**Exhibit 2 - Continued Use of Rev. 08 HVAC Design Report**
				Issue: Partners have noted that the HVAC Design Report is only required to be collected once per system design, even if multiple homes are built using this design. Due to the effort required to collect the HVAC Design Report, they have asked whether previously collected Rev. 08 documentation can continue to be used after the release of the next Revision of the program requirements, so long as no aspect of the system design changes.
				Resolution: Because the next Revision of the HVAC Design Report will not require collection of any additional information or impose any new requirements, and will maintain or increase compliance tolerances, a design documented using Rev. 08 of the HVAC Design Report would, by definition, meet the requirements of the next Revision. Therefore, previously collected Rev. 08 HVAC Design Reports will be permitted to be used after the release of the next Revision of the program requirements, so long as the no aspect of the system design changes. To reflect this change, a new Footnote will be added to Exhibit 2, as follows: "Homes certified under Rev. 09 of the program requirements are permitted to use either Rev. 08 or 09 of the National HVAC Design Report."
00251	**09/10/2012**	**California Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Footnote 7 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.

				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 7, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 7 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. 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."
00252	**09/10/2012**	**California Program Requirements (Version 3, Rev. 02)**	**Refinement**	**Footnote 8 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 8.
				Resolution: The word "were" in Footnote 8 will be revised to "where".
00253	**09/10/2012**	**California Program Requirements (Version 2.5, Rev. 02)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units 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." A footnote will be added to define the term "dwelling unit" that reads:

				"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." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00166	**01/15/2012**	**California Program Requirements (Version 2.5, Rev. 01)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's performance meets or exceeds the California 2008 Building Energy Efficiency Standards requirements by 15%. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "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. Qualification shall only 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). Note that, under the Performance Path, a home must still meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00534	**07/01/2015**	**California Program Requirements (Version 2.5, Rev. 04)**	**Clarification**	**Certifying Homes Section – Addition or renovated space generally not eligible to be certified**
				Issue: Partners have asked if an addition to an existing dwelling unit or a renovated space within an existing dwelling unit is eligible to be ENERGY STAR certified.
				Resolution: An addition or renovated space within an existing structure is not eligible to earn the ENERGY STAR unless it meets all of the following conditions: (1) the addition or renovated

				space is itself a self-contained dwelling unit, as defined by the 2009 IECC (i.e., a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation), and (2) the addition or renovated space has a separate mailing address from the existing structure.
00535	**07/01/2015**	**California Program Requirements (Version 2.5, Rev. 04**	**Clarification**	**Certifying Homes Section – Mini-split / multi-split systems serving multiple dwelling units are central systems**
				Issue: Partners have asked whether a mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units should be classified as a central system. The significance of this classification is that dwelling units in multifamily buildings with 4 or 5 stories above-grade must have their own heating, cooling, and hot water systems, separate from other units, to be eligible to participate in the ENERGY STAR Certified Homes program.
				Resolution: A mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units shall be classified as a central system. Therefore, with such a configuration, dwelling units in multifamily buildings with 4 or 5 stories above-grade would not be eligible to participate in the ENERGY STAR Certified Homes program. However, such multifamily buildings would be eligible to be certified through the Multifamily High Rise program, as long as all other eligibility criteria were met.
00536	**07/01/2015**	**California Program Requirements (Version 2.5, Rev. 04)**	**Clarification**	**Certifying Homes – Shared heating, cooling, & hot water systems**
				Issue: Partners have asked if dwelling units in a multifamily building with 4 units or fewer or with 3 stories or fewer above-grade are eligible to be certified if they share heating, cooling, or water systems.
				Resolution: Dwelling units in any multifamily building with 4 units or fewer, and dwelling units in multifamily buildings with 3 stories or fewer above-grade are eligible to be certified, even if they share heating, cooling, and hot water systems, as long as they meet all program requirements.
00372	**06/01/2013**	**California Program Requirements (Version 2.5, Rev. 03)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units if the infiltration rate is designed to be below that of the California 2008 Building Energy Efficiency Standards. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the CEC-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.

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00373	**06/01/2013**	**California Program Requirements (Version 2.5, Rev. 03)**	**Change**	**Exhibit 1 & Footnote 8 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 1 as will Footnote 8, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00254	**09/10/2012**	**California Program Requirements (Version 2.5, Rev. 02)**	**Clarification**	**Footnote 6 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 6, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 6 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. 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."
00255	**09/10/2012**	**California Program Requirements (Version 2.5, Rev. 02)**	**Refinement**	**Footnote 9 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 9.
				Resolution: The word "were" in Footnote 9 will be revised to "where".
00674	**06/29/2018**	**Florida Program Requirements (Version 3.1, Rev. 06)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to "Florida Program Requirements (Version 3.1, Rev. 08)". Additionally, any references to this document in other program documents will be updated to use the updated title.

00660	**04/11/2018**	**Florida Program Requirements (Version 3.1, Rev. 06)**	**Refinement**	**Incrementing Revision number from 06 to 09**
				Issue: Partners have asked why the program requirements for this region have a different Revision number than the national program. This misalignment has caused confusion about what the most current program requirements are.
				Resolution: In the time since the initial release of the Version 3.1 Program Requirements, several region-specific programs have been developed. The initial release of each set of regional program requirements occurred at various times, often not in alignment with the release of a Revision to the national program requirements. This naming convention was used so that each regional program would progress from an initial release through subsequent revision numbers (e.g., Rev. 01, 02, 03). However, partners' primary perception of the program is tied to the inspection checklists. As a result, having the same foundational checklists used in the regional programs and the national program, each with a different Revision number, has caused confusion. To reduce confusion over the difference in Revision numbers between these regional program requirements and the national program requirements, the next Revision will be incremented from 06 to 09 to align with the national program requirements. As a result, Revision numbers 07 through 08 will not be used.
00654	**02/07/2018**	**Florida Program Requirements (Version 3.1, Rev. 06)**	**Comment**	**Continued implementation of Version 3.1 in Florida**
				Issue: Partners have questioned whether a new Version of the program requirements will be developed in response to the latest version of Florida's residential building energy code. This code, with an effective date of 12/31/2017, incorporates the 2015 IECC with substantive amendments.
				Resolution: An analysis was completed to estimate the savings of a Florida Version 3.1 home relative to the latest version of Florida's residential building energy code. This analysis suggests that Florida Version 3.1 will continue to offer meaningful savings relative to the latest code. Therefore, the current Version of the program requirements will continue to be implemented in Florida. A new Version will not be implemented in Florida until another state-level code update occurs or until EPA defines a new nationwide Version of the program requirements.
00726	**09/01/2018**	**Florida Program Requirements (Version 3.1, Rev. 06)**	**Change**	**Elimination of plant-certification pathway for modular homes**
				Issue: Currently, there are two paths for modular homes to earn ENERGY STAR certification: • A Rater-verification path, where a Rater is responsible for verifying all program requirements. This may require the Rater to complete inspections in the plant for features that are concealed prior to shipment, as well as complete inspections on-site.

				• A plant-certification path, where a Quality Assurance Provider (QAP) certifies that the plant has processes in place to consistently incorporate ENERGY STAR requirements into their production. In this path, the plant is responsible for the verification of some items, while a Rater is responsible for completing the verification process on-site. The existence of two pathways increases the complexity of the program. Furthermore, in the case of the plant-certification path, the division of verification responsibilities between two different parties has occasionally created confusion. EPA evaluated the use of the plant-certification path by partners, and found that only 36 homes were certified by three plants using this path in 2016. Upon conducting outreach with these three partners, none felt strongly about maintaining this path.
				Resolution: The plant-certification path for modular homes will be eliminated because it is not frequently utilized and may be causing confusion among partners. To further clarify the remaining certification process for modular homes, the Eligibility Requirements section will be updated to explicitly encompass modular homes and the ENERGY STAR Certification Process section will be updated to indicate that 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, the Version of the program requirements applicable to a modular home, which is currently based upon the home's "sale date", will be changed to be based upon the "permit date", to align with the policy for other site-built homes. To reflect these changes, the first line of the "Eligibility Requirements" section will be revised as follows: "The following site-built or modular homes are eligible to earn the ENERGY STAR:" The following sentence will be added to Step 3 of the ENERGY STAR Certification Process section: "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." And a new Footnote, Footnote 1, will be added that reads as follows: "A modular home is a prefabricated home that is made of multiple modules or sections that are manufactured and substantially assembled in a manufacturing plant. These pre–built sections are transported to the building site and constructed by a builder to meet all applicable building codes for site–built homes."
00612	**02/23/2017**	**Florida Program Requirements (Version 3.1, Rev. 06)**	**Change**	**Eligibility Requirements: Criteria for dwelling units in four and five story buildings**
				Issue: Partners have indicated that the eligibility requirements for dwelling units in four and five story buildings sometimes cause unintended challenges. Currently, dwelling units with their own heating, cooling, and hot water systems are generally required to be certified using the

				ENERGY STAR certified homes program, while units with shared systems must be certified using the ENERGY STAR Multifamily High-Rise program. Because the requirements are substantially different between the two programs, and the decision to use individual or shared systems is sometimes beyond the control of the design team, including the system type in the eligibility requirements is causing the unintended challenges. Dwelling units with shared systems were initially excluded due to a lack of modeling guidance readily available to ENERGY STAR Raters. With the availability of RESNET's Guidelines for Multifamily Ratings, modeling guidance is now available to address the most common central heating, cooling and hot water systems used in multifamily buildings.
				Resolution: To address the challenges that partners are experiencing with the current eligibility requirements, the criteria related to heating, cooling, and hot water systems will be removed from the national program requirements. The eligibility requirement in the fourth bullet of the Eligibility Requirements section will be revised to state: "Dwelling units in multifamily buildings with 4 or 5 stories above-grade where dwelling units occupy 80% or more of the occupiable square footage of the building[4,5]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met." Footnote 4 will be revised to state: "These units may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program. If participating in the Certified Homes Program and the dwelling unit is served by a central heating, cooling, or hot water system, use of the RESNET Guidelines for Multifamily Ratings for modeling the specified central system(s) is recommended." Footnote 5 will be revised to state: "If permitted prior to July 1, 2012, units in multifamily buildings with 4 or 5 stories above-grade may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program, without assessing whether the 80% threshold has been met."
00613	**02/23/2017**	**Florida Program Requirements (Version 3.1, Rev. 06)**	**Change**	**Determining stories in multifamily buildings with partial floors**
				Issue: Partners have asked whether partial floors in multifamily buildings (e.g., a penthouse, a loft, or a mezzanine) contribute to the total number of stories for the purposes of determining eligibility to participate in the program.
				Resolution: Not all partial floors in multifamily buildings should contribute to the total number of stories for the purposes of determining eligibility to participate in the program. First, consistent with the 2012 IRC, a loft or mezzanine is defined as an intermediate level or levels between the floor and ceiling of any story with an aggregate floor area of not more than one-third of the area of the room or space in which the level or levels are located.

				When determining the number of stories of a multifamily building, a partial floor that meets the definition of a loft or mezzanine shall not count as a story. For example, if the lower floor area of a dwelling unit is 100 sq. ft. and a partial second floor is 25 sq. ft., then the partial second floor is 20% of the total floor area of the dwelling unit (25/125 = 20%). Because 20% is less than 33%, the partial second floor is considered a loft or mezzanine and does not count as a story.
00640	**09/01/2017**	**Florida Program Requirements (Version 3.1, Rev. 06)**	**Change**	**Elimination of Size Adjustment Factor for HERS Index Target calculation**
				Issue: Partners in Texas have expressed difficulty meeting the Version 3.1 ENERGY STAR HERS Index Target for Climate Zone 3, particularly for homes impacted the Size Adjustment Factor (SAF). The Version 3.1 ENERGY STAR HERS Index Targets in Climate Zone 3 are already among the most aggressive, even for homes not impacted by the SAF. While Partners indicated that a minority of homes are impacted by the SAF, for those that are impacted, Partners have expressed that few additional cost-effective measures are available at this time to compensate for the SAF.
				Resolution: In order to address the challenges Partners have had in meeting the ENERGY STAR HERS Index Target, while not significantly impacting energy savings, the SAF will be removed from the HERS Index Target Procedure. As a result, Exhibit 3: Benchmark Home and the associated Footnote 9 will be removed. Additionally, because of the removal of the SAF, the last sentence of Step 1 of the ENERGY STAR Certification Process for Florida, which reads “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 the ENERGY STAR HERS Index Target caused by the Size Adjustment Factor”, is no longer relevant and will therefore will be modified to say ”Furthermore, on-site power generation may not be used to meet the ENERGY STAR HERS Index Target.”
00727	**09/01/2018**	**Florida Program Requirements (Version 3.1, Rev. 06)**	**Clarification**	**Explicit requirement for homes to be registered and receive rating**
				Issue: While implied, there is currently no language in the ENERGY STAR Certification Process section that explicitly requires partners to register homes with an EPA-approved Verification Oversight Organization (VOO) such as RESNET. This step is critical to ensure that the home is encompassed by the quality assurance protocols defined by that VOO.
				Resolution: In order to ensure that ENERGY STAR certified homes are encompassed by a VOO’s quality assurance protocols, ENERGY STAR Certified Homes will be explicitly required to receive a rating and be registered with an EPA-approved VOO. The first paragraph under Step 3 of the ENERGY STAR Certification Process will be updated as follows: “3. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with the on-site inspection procedures for minimum

				rated features of an EPA-Approved VOO. Finally, register the rated home with the same EPA-Approved VOO. The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC Design Report."
00256	**09/10/2012**	**Florida Program Requirements (Version 3.1, Rev. 03)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units 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." A footnote will be added to define the term "dwelling unit" that reads: "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." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00537	**07/01/2015**	**Florida Program Requirements (Version 3.1, Rev. 05)**	**Clarification**	**Certifying Homes Section – Addition or renovated space generally not eligible to be certified**
				Issue: Partners have asked if an addition to an existing dwelling unit or a renovated space within an existing dwelling unit is eligible to be ENERGY STAR certified.

				Resolution: An addition or renovated space within an existing structure is not eligible to earn the ENERGY STAR unless it meets all of the following conditions: (1) the addition or renovated space is itself a self-contained dwelling unit, as defined by the 2009 IECC (i.e., a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation), and (2) the addition or renovated space has a separate mailing address from the existing structure.
00538	**07/01/2015**	**Florida Program Requirements (Version 3.1, Rev. 05)**	**Clarification**	**Certifying Homes Section – Mini-split / multi-split systems serving multiple dwelling units are central systems**
				Issue: Partners have asked whether a mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units should be classified as a central system. The significance of this classification is that dwelling units in multifamily buildings with 4 or 5 stories above-grade must have their own heating, cooling, and hot water systems, separate from other units, to be eligible to participate in the ENERGY STAR Certified Homes program.
				Resolution: A mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units shall be classified as a central system. Therefore, with such a configuration, dwelling units in multifamily buildings with 4 or 5 stories above-grade would not be eligible to participate in the ENERGY STAR Certified Homes program. However, such multifamily buildings would be eligible to be certified through the Multifamily High Rise program, as long as all other eligibility criteria were met.
00539	**07/01/2015**	**Florida Program Requirements (Version 3.1, Rev. 05)**	**Clarification**	**Certifying Homes – Shared heating, cooling, & hot water systems**
				Issue: Partners have asked if dwelling units in a multifamily building with 4 units or fewer or with 3 stories or fewer above-grade are eligible to be certified if they share heating, cooling, or water systems.
				Resolution: Dwelling units in any multifamily building with 4 units or fewer, and dwelling units in multifamily buildings with 3 stories or fewer above-grade are eligible to be certified, even if they share heating, cooling, and hot water systems, as long as they meet all program requirements.
00540	**07/01/2015**	**Florida Program Requirements (Version 3.1, Rev. 05)**	**Change**	**Prescriptive Path - Removal of the Prescriptive Path**
				Issue: There are currently two compliance paths available to partners that lead to certification – the Performance Path and the Prescriptive Path. Each offers unique benefits and constraints, and having two paths was intended to provide partners with added flexibility when certifying homes.

				However, in practice, 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.
				Resolution: To simplify the program, the Prescriptive Path will be removed in Revision 06. Specifically, homes with a permit date on or after 60 days after the release of Rev. 06 will only be permitted to use the Performance Path, which will be renamed the ENERGY STAR Certification Process. However, to minimize the disruption to partners who might have had Prescriptive Path projects in process at the time Revision 06 was released, homes with a permit date before 09/01/2015 will be permitted to use the modified Prescriptive Path allowance. The modified Prescriptive Path allowance provides a single set of measures that can be used to construct an ENERGY STAR Certified Home. No tradeoffs are allowed. However, under this allowance, modeling is required to ensure that all homes receive a HERS rating. The only purpose of this allowance is to provide an alternative ENERGY STAR HERS Index Target. This alternative target will only be beneficial for homes in which the Prescriptive Path efficiency measures do not produce a HERS index that meets the default ENERGY STAR HERS Index Target. To reflect this change, all references to the Prescriptive Path, and any Footnotes that only reference the Prescriptive Path, will be removed from all program documents. Additionally a new Footnote will be added to the Florida Program Requirements as follows: "Prior to Rev. 06, 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. 06 shall only use the Performance Path, which has been renamed the ENERGY STAR Certification Process. To minimize disruption to projects that are in process, homes with a permit date before 09/01/2015 are permitted to use a modified version of the Prescriptive Path in lieu of the Performance Path. For more information about this compliance option, visit: www.energystar.gov/FLv31prescriptivepath." Additionally, a new document that defines the modified Prescriptive Path allowance will be created and available at www.energystar.gov/FLv31prescriptivepath.
00374	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 3 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the

				home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home. To clarify this intent, the following sentence will be added to the end of Footnote 9: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00375	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Clarification**	**Prescriptive Path - Below-grade wall area for a home with multiple basement spaces**
				Issue: Partners have asked how to determine whether at least half of the basement wall area is below grade for a home with multiple basement spaces.
				Resolution: For a home that has multiple basement spaces, the gross surface area of the walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.
00376	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. The infiltration rate must also be verified for multifamily dwelling units certified using the Performance Path, if the infiltration rate is designed to be below that of the RESNET HERS Reference Home. Note that the RESNET HERS Reference Home infiltration rate is often significantly higher than the rate specified in the ENERGY STAR Reference Design. Therefore, if the RESNET HERS Reference Home infiltration rate is used in lieu of testing, other energy efficiency features will likely be required to compensate. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00541	**07/01/2015**	**Florida Program Requirements (Version 3.1, Rev. 05)**	**Refinement**	**Performance Path and Footnote 9 – Integration of cover page from Inspection Checklists**
				Issue: Partners have provided consistent feedback that the amount of paperwork required to certify a home should be minimized wherever possible.
				Resolution: As part of a larger effort to reduce the amount of paperwork required to certify a home, the cover page of the Inspection Checklists will be deleted and much of the content will

				be moved to the Florida 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 will be 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. The only exceptions to this rule are in the Thermal Enclosure System Section of the Rater Field Checklist, where the builder may assume responsibility for verifying a maximum of eight items. This option shall only be used at the discretion of the Rater. When exercised, the builder’s responsibility will be formally acknowledged by the builder signing the checklist for the item(s) that they verified. 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 will be 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 for homes outside California, and the CEC-approved sampling protocol for homes in CA. 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.”
00542	**07/25/2011**	**Florida Program Requirements (Version 3.1, Rev. 05)**	**Clarification**	**Performance Path – Modeling requirements for multifamily buildings**
				Issue: Partners have asked if, under the Performance Path, each unit in a multifamily building must be individually modeled to demonstrate compliance with its ENERGY STAR HERS Index Target. The current program requirements do not clearly state whether this is a requirement.
				Resolution: Each dwelling unit in a multifamily building must be individually modeled to demonstrate compliance with its ENERGY STAR HERS Index Target. EPA is aware of two other approaches that have been used by partners in the past, which will no longer be applicable. The first was to generate a single ENERGY STAR HERS index target using a single model for the entire building. While this approach was never explicitly allowed or encouraged, it was also never prohibited. In the time since this issue was identified, RESNET formed a multifamily high-rise working group to provide recommendations on how the HERS methodology should be applied to this sector. One of the recommendations of the working group was to explicitly prohibit modeling of a multifamily residential building in order to determine the HERS Index for that building or to apply that building-level HERS Index to the dwelling units in that building. The second was to model a subset of dwelling units using a policy developed for Version 2 of the program. This policy was developed primarily to address the challenge that a single set of efficiency measures applied to different dwelling units often results in different HERS index values. Because Version 2 of the program defined a single HERS index target within a climate zone, this variation made it more difficult for partners to select a single set of measures for all multifamily dwelling units. Beginning with Version 3, a dynamic HERS index target is defined for each home. This more easily allows partners to select a single set of measures across all dwelling units. Therefore, the Version 2 policy allowing a subset of dwelling units to be modeled was not intended to be applied to homes certified under v3 and is no longer applicable.
00377	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Refinement**	**Performance Path – Using software to determine the ENERGY STAR HERS Index Target**
				Issue: Partners have noted that all RESNET-accredited rating software programs used in the ENERGY STAR Certified Homes program are now capable of automatically configuring the ENERGY STAR Reference Design, calculating its associated HERS Index value, and then applying the Size Adjustment Factor to determine the ENERGY STAR HERS Index Target. As a result, Partners have questioned whether this process is still permitted to be completed manually.

				Resolution: To clarify that the process of determining the ENERGY STAR HERS Index Target must be completed using a RESNET-accredited rating software program, and is no longer permitted to be completed manually, the phrase "Use a RESNET-accredited Home Energy Rating software program…" will be added to the beginning of Step 1 of the Performance Path. Additionally, the second paragraph of Step 1 of the Performance Path, which states that Raters are permitted to calculate the ENERGY STAR HERS Index Target manually until software becomes available to do this automatically, will be removed.
00378	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Refinement**	**Step 2 of Performance Path - Reference to Thermal Enclosure System Rater Checklist**
				Issue: Partners have noted that Step 2 of the Performance Path specifies that the Mandatory Requirements for All Qualified Homes in Exhibit 2 are required, but then also specifies that two specific Items in the Thermal Enclosure System Rater Checklist (TES) are also required. This reference to two specific Items in the TES is redundant and may create confusion.
				Resolution: To improve clarity, the reference to Items 1.2 and 2.1 of the TES in Step 2 of the Performance Path will be removed and the first paragraph of Step 2 will be revised as follows: "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 Qualified Homes in Exhibit 2 are also required and impose certain constraints on the energy measures selected (e.g., insulation levels, insulation installation quality, window performance, duct leakage)."
00176	**01/15/2012**	**Florida Program Requirements (Version 3.1, Rev. 02)**	**Clarification**	**Partnership, Training, and Credentialing Requirements**
				Issue: Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.
				Resolution: A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the "ENERGY STAR Performance Path" section and read as follows: "Partnership, Training, and Credentialing Requirements Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying 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.

				• 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.resnet.us/energystar."
00257	**09/10/2012**	**Florida Program Requirements (Version 3.1, Rev. 03)**	**Refinement**	**Partnership, Training, and Credentialing – Rater and Field Inspector training**
				Issue: EPA has identified that the website provided for Raters and Field Inspectors' Version 3 Training requirements is out of date.
				Resolution: Raters and Field Inspectors can find Version 3 Training requirements at www.energystar.gov/newhomestraining. This website will be provided in place of the out of date website.
00177	**01/15/2012**	**Florida Program Requirements (Version 3.1, Rev. 02)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "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. Qualification shall only 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). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00178	**01/15/2012**		**Clarification**	**Footnote 10d - Minimum insulation requirements when using a total UA calculation**

		Florida Program Requirements (Version 3.1, Rev. 02)		**Issue:** Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that "while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated."
				Resolution: To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 10d will be revised as follows: "…Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated..."
00179	**01/15/2012**	**Florida Program Requirements (Version 3.1, Rev. 02)**	**Change**	**Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: To address partners' difficulties meeting the total duct leakage limit, the total duct leakage limit in the Thermostat & Ductwork section of Exhibit 1 will be revised as follows: "Total duct leakage ≤ 8 CFM25 per 100 sq. ft. of CFA." Additionally, because the total duct leakage threshold will now be the same for all homes, Footnote 22 will be removed.
00180	**01/15/2012**	**Florida Program Requirements (Version 3.1, Rev. 02)**	**Refinement**	**Prescriptive Path – ENERGY STAR qualified lighting**
				Issue: The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.
				Resolution: To align with the terminology now used to describe ENERGY STAR qualified lighting products, the lighting requirement in the ENERGY STAR Reference Design will be revised as follows: "ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations."
00728	**09/01/2018**	**Florida Program Requirements**	**Refinement**	**Exhibit 1 - ENERGY STAR certified products specification versions**
				Issue: Partners have noted the efficiency levels of ENERGY STAR certified products in Exhibit 1: ENERGY STAR Reference Design Home may not always align with the efficiency levels in

		(Version 3.1, Rev. 06)		the most recent specification of an ENERGY STAR certified product. They have asked why this is the case and whether revisions to ENERGY STAR product specifications impact the program requirements.
				Resolution: Efficiency levels of products described as "ENERGY STAR" in the Reference Design Home aligned with the specifications for the ENERGY STAR certified product when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI target, regardless of any subsequent revisions to ENERGY STAR certified product specifications. This clarification will be reflected in a new Footnote to Exhibit 1: ENERGY STAR Reference Design Home as follows: "Note that the efficiency levels of ENERGY STAR certified products aligned with these product specifications when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI target, regardless of any subsequent revisions to ENERGY STAR certified product specifications. EPA recommends, but does not require, that current ENERGY STAR products be included in ENERGY STAR homes. For current ENERGY STAR products, visit www.energystar.gov/products."
00770	**09/01/2018**	**Florida Program Requirements (Version 3.1, Rev. 06)**	**Refinement**	**Exhibit 1 - References updated to latest RESNET standard**
				Issue: This document contains numerous references to the "RESNET Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Therefore, the current references are outdated.
				Resolution: References to the "RESNET Standard" will be updated to the ANSI-standard version. To reflect this change, the following edits will be made: • In the Envelope Section: "Insulation levels modeled to Grade I installation per ANSI / RESNET / ICC Standard 301" • In the Lighting & Appliances Section: "ENERGY STAR light bulbs modeled in 80% of ANSI / RESNET / ICC Standard 301-defined Qualifying Light Fixture Locations." In addition, where a specific version of Standard 301 is not specified, a new Footnote will be added as follows: "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings is used to model this parameter. "
00543	**07/01/2015**	**Florida Program Requirements**	**Refinement**	**Exhibit 2: Updated Terminology For Mandatory Requirements**
				Issue: Partners have provided consistent feedback that the workflow required to certify a home should be improved where possible.

<table>
<tr><td></td><td></td><td>(Version 3.1, Rev. 05)</td><td></td><td>Resolution: As part of a larger effort to improve the workflow required to certify a home, the inspection checklists required to certify a home will, in part, be rearranged and renamed to improve the workflow of the certification process. Exhibit 2 will be updated to reflect the revised program documents and who is responsible for completing each of them, as follows:
<table>
<tr><th>Party Responsible</th><th>Mandatory Requirements</th></tr>
<tr><td>Rater</td><td>• Completion of Rater Design Review Checklist
• Completion of Rater Field Checklist</td></tr>
<tr><td>HVAC System Designer</td><td>• Completion of HVAC Design Report</td></tr>
<tr><td>HVAC Installing Contractor</td><td>• Completion of HVAC Commissioning Checklist</td></tr>
<tr><td>Builder</td><td>• Completion of Water Management System Builder Requirements</td></tr>
</table></td></tr>
<tr><td>00379</td><td>06/01/2013</td><td>Florida Program Requirements (Version 3.1, Rev. 04)</td><td>Refinement</td><td>Exhibit 2 – Redundant Section header and accompanying text removed</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Issue: Partners have noted that the Section header and text accompanying Exhibit 2 contain information already found in the Performance Path, Prescriptive Path, and title of Exhibit 2.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Resolution: The Section header (i.e., “Mandatory Requirements for All ENERY STAR Qualified Homes”) and accompanying text (i.e., “As noted in the Performance Path and the Prescriptive Path, all ENERGY STAR Qualified New Homes must meet the requirements of the checklists in Exhibit 2”) will be removed to eliminate redundancy.</td></tr>
<tr><td>00380</td><td>06/01/2013</td><td>Florida Program Requirements (Version 3.1, Rev. 04)</td><td>Change</td><td>Exhibit 2 & Footnote 25 - Removal of Indoor airPLUS Checklist as compliance option</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Issue: Partners have noted that EPA’s Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home’s participation in the Indoor airPLUS program, the phrase “(or Indoor airPLUS Verification Checklist)” will be removed from Exhibit 2 as will Footnote 25, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.</td></tr>
<tr><td>00729</td><td>09/01/2018</td><td></td><td>Refinement</td><td>Effective Date Section – Revised structure and format of Implementation Timeline</td></tr>
</table>

<table>
<tr><td></td><td></td><td>Florida Program Requirements (Version 3.1, Rev. 06)</td><td></td><td>Issue: The Effective Date Section varies in structure across program requirements, creating potential confusion. In addition, the implementation timeline information contained within the Exhibit in this Section does not consistently document prior and future Versions of the program, and does not currently incorporate the implementation timelines of both Versions and Revisions.</td></tr>
<tr><td colspan="4"></td><td>Resolution: To help ensure partners are aware of the implementation timeline(s) applicable to the homes that they certify, the Effective Date section will be revised to make the overall structure consistent. Furthermore, the Exhibit containing the implementation timelines will be revised to include the Version(s) and Revision(s) that was applicable for the two years prior to the date of publication, as well as all future Versions and Revisions that are applicable to each location. With this refinement to the Exhibit, Footnote 12 and the first sentence of Footnote 11 will be removed as the revised Implementation Timeline contains this information. These refinements will be reflected as follows:

Effective Date

To determine the program Version and Revision that a home is required to be certified under, look up the permit date of the home in Exhibit 3. Program requirements for other locations can be found at www.energystar.gov/newhomesrequirements.

This Exhibit contains all implementation timelines applicable on or after September 1, 2016. Implementation timelines applicable prior to this date can be obtained by contacting energystarhomes@energystar.gov.

Exhibit 3: ENERGY STAR Certified Homes Implementation Timeline for Florida
<table>
<tr><th>State / Territory</th><th>Homes Permitted On or After This Date Must Meet the Adjacent Version & Revision</th><th>Version</th><th>Revision</th></tr>
<tr><td rowspan="2">FL</td><td>07-01-2016</td><td>Florida v3.1</td><td>Rev. 06</td></tr>
<tr><td>01-01-2019</td><td>Florida v3.1</td><td>Rev. 09</td></tr>
</table></td></tr>
<tr><td rowspan="3">00258</td><td rowspan="3">09/10/2012</td><td rowspan="3">Florida Program Requirements (Version 3.1, Rev. 03)</td><td rowspan="3">Refinement</td><td>Exhibit 3 - Inclusion of zero bedrooms in Benchmark Home exhibit</td></tr>
<tr><td>Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 3, rather than discussing it in the accompanying text.</td></tr>
<tr><td>Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 3. To avoid redundancy, the phrase “if a home has zero bedrooms with regard to the Benchmark Home Size determination,</td></tr>
</table>

				then the Benchmark Home Size for one bedroom shall be used" will be removed from the Prescriptive Path section.
00784	**09/01/2018**	**Florida Program Requirements (Version 3.1, Rev. 06)**	**Change**	**Exhibit 4 - Continued Use of Rev. 08 HVAC Design Report**
				Issue: Partners have noted that the HVAC Design Report is only required to be collected once per system design, even if multiple homes are built using this design. Due to the effort required to collect the HVAC Design Report, they have asked whether previously collected Rev. 08 documentation can continue to be used after the release of the next Revision of the program requirements, so long as no aspect of the system design changes.
				Resolution: Because the next Revision of the HVAC Design Report will not require collection of any additional information or impose any new requirements, and will maintain or increase compliance tolerances, a design documented using Rev. 08 of the HVAC Design Report would, by definition, meet the requirements of the next Revision. Therefore, previously collected Rev. 08 HVAC Design Reports will be permitted to be used after the release of the next Revision of the program requirements, so long as the no aspect of the system design changes. To reflect this change, a new Footnote will be added to Exhibit 4, as follows: "Homes certified under Rev. 09 of the program requirements are permitted to use either Rev. 08 or 09 of the National HVAC Design Report."
00381	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Refinement**	**Exhibit 4 – Consolidation of Footnotes**
				Issue: Partners have noted that Exhibit 4 contains its own set of Footnotes separate from the general Footnotes for the rest of the document, which may cause confusion. Furthermore, they have noted that some of these Footnotes are duplicative of the general Footnotes for the rest of the document, others are obsolete, and others are specific to Exhibit 4.
				Resolution: To improve the clarity of the document, Footnote 1 of Exhibit 4 will be moved to the general Footnotes for the rest of the document and renumbered accordingly. Footnote 2 of Exhibit 4, which is duplicative of the general Footnote 14, will be deleted and Footnote 14 will be referenced instead. Footnote 3 of Exhibit 4, which allowed advance labeling of homes under Version 2.5 and prohibited homes from being qualified under Version 3 until January 1, 2012, is no longer applicable and will be removed. Footnote 4 of Exhibit 4, which allowed labeling of homes under Version 3 prior to July 1, 2012 where a utility or state sponsor was mandating or incentivizing early adoption, is no longer applicable and will be removed.
00259	**09/10/2012**	**Florida Program Requirements**	**Clarification**	**Footnote 8 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.

		(Version 3.1, Rev. 03)		**Resolution:** A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 8, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 8 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. 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."
00382	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Refinement**	**Footnote 10 – Complete definition of ENERGY STAR Reference Design**
				Issue: Partners have noted that Footnote 10 defines where the complete definition of the ENERGY STAR Reference Design can be found. This information is already provided in Step 1 of the Performance Path. Therefore, this Footnote is redundant.
				Resolution: To avoid redundancy, Footnote 10 will be removed.
00425	**09/23/2013**	**Florida Program Requirements (Version 3.1, Rev. 05)**	**Change**	**Footnote 10d- Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Both the Performance Path and Prescriptive Path already define minimum performance limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than these limits from contributing to the total UA of the home.
				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define minimum performance limits for fenestration U-factor and SHGC, fenestration that does exceed these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 10d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of

				the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method."
00260	**09/10/2012**	**Florida Program Requirements (Version 3.1, Rev. 03)**	**Refinement**	**Footnote 13 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 13.
				Resolution: The word "were" in Footnote 13 will be revised to "where".
00261	**09/10/2012**	**Florida Program Requirements (Version 3.1, Rev. 03)**	**Clarification**	**Footnote 19 – Allowance to use integrated/combined hot water products**
				Issue: Partners have asked if a single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in an ENERGY STAR Certified Home.
				Resolution: A single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating and domestic hot water shall be used. In contrast, a tankless coil water heater, where domestic water flows through a coil installed in the space heating system, is not permitted, due to the low efficiency of this system type. To clarify the allowable integrated domestic hot water and space heating systems, Footnote 19 will be revised as follows: "Domestic hot water systems that are integrated with the space-heating system are permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating and domestic hot water shall be used. A 'tankless coil water heater', where domestic water flows through a coil installed in the space-heating system, is not permitted."
00383	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Clarification**	**Footnote 21 - Applicability of thermostats with 'Adaptive Recovery' technology**
				Issue: Partners have asked if Footnote 21, which states: "For homes with heat pumps, the thermostat shall have 'Adaptive Recovery' technology to prevent the excessive use of electric backup heating," is applicable to both air-source and ground-source heat pumps.
				Resolution: The requirement for thermostats with 'Adaptive Recovery' technology applies to any heat pump with an electric resistance heating element used to supplement the capacity of the heat pump, regardless of whether the heat pump is air-source or ground-source. Note that

				such a thermostat is not required for a home with a heat pump that only includes an electric resistance heating element used during compressor failure (i.e., emergency heat). To clarify when this requirement applies, Footnote 21 will be revised as follows: "For homes with heat pumps that contain an electric resistance heating element used to supplement the capacity of the heat pump, the thermostat shall have 'Adaptive Recovery' technology to prevent excessive use of the heating element."
00675	**06/29/2018**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to "Florida HERS Index Target Procedure (Version 3.1, Rev. 06)". Additionally, any references to this document in other program documents will be updated to use the updated title.
00661	**04/11/2018**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Refinement**	**Incrementing Revision number from 06 to 09**
				Issue: Partners have asked why the program requirements for this region have a different Revision number than the national program. This misalignment has caused confusion about what the most current program requirements are.
				Resolution: In the time since the initial release of the Version 3.1 Program Requirements, several region-specific programs have been developed. The initial release of each set of regional program requirements occurred at various times, often not in alignment with the release of a Revision to the national program requirements. This naming convention was used so that each regional program would progress from an initial release through subsequent revision numbers (e.g., Rev. 01, 02, 03). However, partners' primary perception of the program is tied to the inspection checklists. As a result, having the same foundational checklists used in the regional programs and the national program, each with a different Revision number, has caused confusion. To reduce confusion over the difference in Revision numbers between these regional program requirements and the national program requirements, the next Revision will be incremented from 06 to 09 to align with the national program requirements. As a result, Revision numbers 07 through 08 will not be used.
00641	**09/01/2017**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Change**	**Elimination of Size Adjustment Factor for HERS Index Target Procedure**
				Issue: Partners in Texas have expressed difficulty meeting the Version 3.1 ENERGY STAR HERS Index Target for Climate Zone 3, particularly for homes impacted the Size Adjustment Factor (SAF). The Version 3.1 ENERGY STAR HERS Index Targets in Climate Zone 3 are already among the most aggressive, even for homes not impacted by the SAF. While Partners

				indicated that a minority of homes are impacted by the SAF, for those that are impacted, Partners have expressed that few additional cost-effective measures are available at this time to compensate for the SAF.
				Resolution: In order to address the challenges Partners have had in meeting the ENERGY STAR HERS Index Target, while not have significantly impacting energy savings, the SAF will be removed. For consistency, this change will be applied to all Climate Zones. Additionally, this change will be made to the HERS Index Target Procedure for the State of Florida to maintain consistency. As a result of removing the SAF, Exhibit 1: Benchmark Home Size and associated Footnotes 1 through 3 will be deleted. Additionally, Exhibit 2: Expanded ENERGY STAR Reference Design Definition for the State of Florida will be relabeled Exhibit 1. Finally, the language from Step 1 and Step 3 will be condensed as follows: "A RESNET-accredited Home Energy Rating software program shall automatically determine (i.e., without relying on a user-configured ENERGY STAR Reference Design) this target for each rated home. This shall be done by configuring the ENERGY STAR Reference Design Home in accordance with Exhibit 1, the Expanded ENERGY STAR Reference Design Definition for the State of Florida, and calculating its associated HERS Index value. This value, rounded to the nearest whole number, shall equal the ENERGY STAR HERS Index Target."
00730	**09/01/2018**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Clarification**	**References updated to latest RESNET standard and various parameters clarified**
				Issue: This document contains numerous references to "RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Hence, the current references are outdated. In addition, several parameters require clarification as to how they should be configured in the ENERGY STAR Reference Design Home.
				Resolution: References to "RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard" will be updated to the ANSI-standard version. In addition, references to specific sections of the standard will be replaced with more general references to prevent outdated references as the standard continues to be revised. Finally, the configuration of Service Water Heating Systems and Internal Gains will be clarified. To reflect these clarifications, the following edits will be made: • In the Glazing: Interior Shade Coefficient Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301" • In the Service Water Heating Systems: Use (Gallons per Day) Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except

				for reduced usage resulting from the dishwasher specified in the Lighting, Appliances, & Internal Gains Section." In addition, this will be associated with a new Footnote as follows: "That is to say, representative of standard-flow plumbing fixtures, reference clothes washer gallons per day, standard distribution system water use effectiveness, a hot water piping ratio of 1.0, no pipe insulation, and no drainwater heat recovery." • Service Water Heating Systems: Tank Temperature Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301". • Thermostat: Temperature Setpoints Section: "Same as Energy Rating Reference Home, but with offsets for a programmable thermostat, as defined by ANSI / RESNET / ICC Std. 301" • Lighting, Appliances, & Internal Gains: Internal Gains Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for adjustments for the lighting, refrigerator, dishwasher, and ceiling fans specified in this Section." • Internal Mass Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301". • Footnote 10: This Footnote contained the reference to the outdated version of the RESNET standard and will be deleted. In addition to these edits, a new Footnote will be associated with all parameters included above, as follows: "The version of ANSI / RESNT / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter."
00731	**09/01/2018**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Change**	**Exhibit 2 - Heating Systems and Cooling Systems – Equipment capacity and EAE** **Issue:** Partners have asked EPA about two attributes of heating and cooling equipment in the ENERGY STAR Reference Design Home. The first is about the acceptable methodologies for selecting the capacity of the heating and cooling equipment. Partners have noted that ANSI / RESNET / ICC Std. 301 has refined language regarding this process. More importantly, Std. 301 does not allow the equipment capacity of the rated home to be used for the Energy Rating Reference Home. This option was included for the ENERGY STAR Reference Design Home when ENERGY STAR Version 3 was first drafted to ease the burden for ERI software programs. However, it appears that none of the software providers are using this option. The second attribute is the Electric Auxiliary Energy (EAE) of non-electric warm furnaces and non-electric boilers. This attribute is not specified, yet can potentially have a significant impact on the efficiency of the home so omitting it could lead to inconsistencies in how the ENERGY STAR Reference Design Home is configured.

				Resolution: To clarify the configuration of these two attributes, the Heating Systems and Cooling Systems Sections will be revised as follows: In the Heating Systems Section, the first row will be revised as follows: “Heating capacity shall be selected in accordance with ACCA Manual S based on building heating and cooling loads calculated in accordance with ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure”. In the Heating Systems Section, a new row will be added at the bottom of this section with the following language: “For non-electric warm furnaces and non-electric boilers, the Electric Auxiliary Energy shall be determined in accordance with the methodology for the Energy Rating Reference Home in ANSI / RESNET / ICC Std. 301, using the capacity determined in this Section”. This will be associated with a new Footnote as follows: “The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter.” In the Cooling Systems Section, the first row will be revised as follows: “Cooling capacity shall be selected in accordance with ACCA Manual S based on building heating and cooling loads calculated in accordance with ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure”.
00595	**08/08/2016**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Clarification**	**Exhibit 2 - Service Water Heating Systems**
				Issue: Policy Record Entry 00730 contains the most recent resolution of this issue. This issue (ID 00595) is only being retained to maintain a complete Policy Record. Partners have asked whether the ENERGY STAR Reference Design Definition, which currently sets the hot water use equal to that of the HERS Reference Home, should be changed with the release of ANSI/RESNET/ICC 301-2014, Addendum A-2015. ANSI/RESNET/ICC 301-2014, Addendum A-2015 defines a new methodology for calculating this value by incorporating features including: efficient clothes washers; efficient dishwashers; low-flow showers and faucets; water inlet, setpoint, and use temperatures; drain water heat recovery systems; pipe length; hot water pipe insulation; and the presence of a recirculation system with various control types. When originally defining the ENERGY STAR HERS Reference Home, such features were not credited. While the recognition of such features now allows partners to use them to improve the HERS index of the rated home, it is unclear whether the ENERGY STAR HERS Reference Home now incorporates any of these features.
				Resolution: Policy Record Entry 00730 contains the most recent resolution of this issue. This issue (ID 00595) is only being retained to maintain a complete Policy Record.

				So as not to increase the stringency of the ENERGY STAR program in between versions, the hot water use specified in the ENERGY STAR Reference Design Definition will continue to be set equal to HERS Reference Home. Effectively, this means that the ENERGY STAR HERS index target will be no more stringent than before the release of ANSI/RESNET/ICC 301-2014, Addendum A-2015. Furthermore, partners will be free to incorporate water efficiency features into their rated homes to both improve the HERS index target and help meet the ENERGY STAR HERS index target. Because the hot water use of the ENERGY STAR Reference Design Home will continue to align with the HERS Reference Home, no revisions are needed for that attribute. To reinforce that the ENERGY STAR Reference Design Home will not be configured with a recirculation system, the annual pump energy will be set to 0 kWh. To reflect this, a row will be added to the Service Water Heating System Section of Exhibit 2 that reads: "Recirculation Pump: 0 kWh per year"
00642	**09/01/2017**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Change**	**Exhibit 2 – Adjusted tank size when rated home has gas instant water heater**
				Issue: Partners have discovered that the ENERGY STAR HERS Index Target becomes more stringent when upgrading a rated home from a gas 50 gallon storage water heater to a gas instantaneous water heater. This is because the ENERGY STAR HERS Index Target procedure specifies that for a rated home with a gas instantaneous water heater, the ENERGY STAR Reference Design Home is to be configured with a gas 40 gallon storage water heater with a corresponding efficiency of 0.61 EF.
				Resolution: EPA did not intend to make the ENERGY STAR HERS index target more stringent when the rated home is upgraded from a storage water heater to an instant water heater. Partners have indicated that the most common gas storage water heater size is 50 gallons. In order to address this inadvertent impact on the ENERGY STAR HERS Index Target, when the rated home has a gas instantaneous water heater, the tank capacity specified in the Service Water Heating Systems section in Exhibit 2 will be changed.as follows: "Conventional storage water heater with tank size equal to that of Rated Home, unless Rated Home uses instantaneous water heater in which case select 50 gallon tank for gas systems and 60 gallon tank for electric systems…"
00732	**09/01/2018**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Clarification**	**Exhibit 2- Lighting, Appliances, & Internal Gains – Tier I lighting**
				Issue: Partners have asked if the lighting specified in this Section refers to Tier I or Tier II lighting.
				Resolution: To clarify that the lighting in this Section is intended to refer to Tier I lighting, the lighting portion of this Section will be revised as follows:

				"Lighting: Fraction of qualifying Tier I fixtures to all fixtures in qualifying light fixture locations: 80% for interior; 0% for exterior and garage"
00596	**08/08/2016**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Clarification**	**Lighting, Appliances, & Internal Gains - % qualifying lighting**
				Issue: Partners have asked if the percent of qualifying lighting specified in this Section refers to interior, outdoor, or garage lighting.
				Resolution: To clarify that the percent of qualifying lighting in this Section is intended to refer to the interior lighting, the lighting portion of this Section will be revised as follows: "Lighting: Fraction of qualifying fixtures to all fixtures in qualifying light fixture locations: 80% for interior; 0% for exterior and garage"
00733	**09/01/2018**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Clarification**	**Exhibit 2 - Lighting, Appliances, & Internal Gains – Dishwasher place setting capacity**
				Issue: Partners have noted that the dishwasher specified in this Section omits a value for dishwasher place setting capacity. This input is required to determine the consumption of the dishwasher, so omitting it could lead to inconsistencies in how the ENERGY STAR Reference Design Home is configured.
				Resolution: To clarify that the dishwasher place setting capacity shall be set equal to the rated home, the dishwasher portion of this Section will be revised as follows: "Dishwasher: 0.66 EF, Place Setting Capacity Same as Rated Home"
00734	**09/01/2018**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Clarification**	**Exhibit 2 – Clothes washer and dryer configured with same efficiency as Energy Rating Reference Home**
				Issue: Partners have asked for clarification on how the clothes washer and dryer should be configured in the ENERGY STAR Reference Design Home. Currently, no guidance is provided specific to these appliances, yet a footnote states that, "Any parameter not specified in this exhibit shall be set to 'Same as Rated Home'". Therefore, partners have asked whether these appliances should be configured to align with the rated home or with the Energy Rating Reference Home.
				Resolution: The clothes washer and dryer in the ENERGY STAR Reference Design Home will be specified to be the same efficiency as the Energy Rating Reference Home. The Lighting, Appliances & Internal Gains section of Exhibit 2, Expanded ENERGY STAR Reference Design Definition, will be updated to reflect this by including a new cell with the following language: "Clothes Washer and Dryer: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301" A new Footnote will also be added to this cell to clarify that, "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter." Configuring the clothes washer and dryer in the ENERGY STAR Reference Design Home with the same efficiency as the Energy Rating Reference Home will give partners credit towards

				their ENERGY STAR HERS Index Target when using more efficient clothes washers and dryers. Furthermore, it will maintain the current stringency of the program requirements.
00262	**09/10/2012**	**HERS Index Target Procedure for the State of Florida (Version 3.1, Rev. 03)**	**Refinement**	**Exhibit 1 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 1, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 1. To avoid redundancy, the phrase “if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used” will be removed from Footnote 1.
00544	**07/01/2015**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 05)**	**Clarification**	**Exhibit 2 - Configuration of thermal boundary in basements**
				Issue: Home energy rating software vendors have asked for clarification when configuring the foundation insulation of the ENERGY STAR Reference Design in a home with a basement. Some home energy rating software programs provide the user with the ability to specify the thermal boundary location independent of the conditioned space boundary in the basement of the rated home, whereas other programs do not.
				Resolution: If software provides the user with the ability to specify the thermal boundary location independent of the conditioned space boundary in the basement of a Rate home (e.g., REM/Rate), then this specified thermal boundary location shall be used to configure the foundation insulation in the ENERGY STAR Reference Design Home. If software does not provide the user with this ability, but rather uses the location of the conditioned space boundary to determine the thermal boundary location, then this logic shall be used to configure the foundation insulation in the ENERGY STAR Reference Design Home. The Insulation sub-section of the Foundation Section and the Floors Over Unconditioned Spaces Section of Exhibit 2 shall reference a new Footnote that reads 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.”
00545	**07/01/2015**		**Clarification**	**Exhibit 2 – Heating & cooling equipment configuration when Rated Home has neither**

		HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 05)		**Issue:** Partners have asked for clarification on how the heating and cooling equipment should be configured in the ENERGY STAR Reference Design Home when the Rated Home does not have heating or cooling equipment.
				Resolution: The same logic that is in BSR/RESNET Standard 301-2013" will be used to configure the ENERGY STAR Reference Design, which should result in a policy that neither penalizes nor rewards homes that do not include heating or cooling equipment. To reflect this clarification, the Heating Systems Section of Exhibit 2 will reference a new Footnote in the System Type subsection 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." And the Cooling Systems Section of Exhibit 2 will reference a new Footnote in the System Type subsection 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."
00384	**06/01/2013**	**HERS Index Target Procedure for the State of Florida (Version 3.1, Rev. 04)**	**Refinement**	**Exhibit 2, Service Water Heating Systems – Addition of oil water heater Energy Factors**
				Issue: Partners have noted that Energy Factors (EF) for oil hot water heaters are not provided in the Service Water Heating Systems Section of Exhibit 2.
				Resolution: The following rows will be added to the Service Water Heating Systems Section of Exhibit 2 to address the configuration of the ENERGY STAR Reference Design for homes with oil water heating: **Oil Storage Tank Capacity: 30 Gallon 40 Gallon 50 Gallon 60 Gallon 70 Gallon 80 Gallon** **Oil DHW EF:** 0.55 0.53 0.51 0.49 0.47 0.45
00385	**06/01/2013**	**HERS Index Target Procedure for the State of Florida (Version 3.1, Rev. 04)**	**Change**	**Exhibit 2, Service Water Heating Systems – Tank size**
				Issue: Partners have noted that the Service Water Heating Systems Section of Exhibit 2 does not contain guidance on which tank size to model.
				Resolution: The System Type definition in the Service Water Heating Systems Section of Exhibit 2 will be revised as follows to address the tank size to be modeled: "System Type: Conventional storage water heater with tank size equal to that of Rated Home, unless Rated Home uses instantaneous water heater, in which case select 40 gallon tank for gas systems and 60 gallon tank for electric systems. Select applicable efficiency from below using tank size of Rated Home. If Rated Home uses instantaneous water heater, then select the efficiency of the 40 gallon tank for gas systems and 60 gallon tank for electric systems."

00546	**07/01/2015**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 05)**	**Change**	**Thermal Distribution Systems Section – Duct location for multifamily dwelling units**
				Issue: Partners have noted that it is unclear how to configure the duct locations of the reference home for homes that do not meet any of the conditions in the 'Supply and Return Duct Locations:' sub-header in the Thermal Distribution Systems Section (e.g., multifamily dwelling unit with conditioned unit below).
				Resolution: 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 will be 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 conditioned space."
00547	**07/01/2015**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 05)**	**Change**	**Exhibit 2 – Quantity of ceiling fans**
				Issue: Partners have asked for clarification on the quantity of ceiling fans that the ENERGY STAR Reference Design home should be configured with.
				Resolution: The quantity of ceiling fans in the ENERGY STAR Reference Design home shall equal the number of bedrooms plus one when ceiling fans are present in the Rated home; otherwise the quantity shall be zero. The Ceiling Fan row of the Lighting, Appliances, & Internal Gains Section of Exhibit 2 will be revised as follows to reflect this clarification: "Ceiling Fan: 122 CFM per Watt; Quantity = Number of bedrooms + 1 when ceiling fans present in Rated Home; otherwise Quantity = 0".
00263	**09/10/2012**	**HERS Index Target Procedure for the State of Florida (Version 3.1, Rev. 03)**	**Refinement**	**Footnote 4 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 4.
				Resolution: The word "were" in Footnote 4 will be revised to "where".
00735	**09/01/2018**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Refinement**	**Footnote 9 - Alignment of window area terminology with Standard 301**
				Issue: The terminology in Footnote 9, used when calculating the Reference Home's total window area for homes with conditioned basements and attached homes, is not fully aligned with Footnote (b) of Table 4.2.2(1) of ANSI / RESNET / ICC Standard 301-2014.
				Resolution: To align with the terminology used in Standard 301 and prevent potential confusion, Footnote 9 will be revised. The equation will be updated as follows: "AG = 0.15 x CFA x FA x F"

				The first set of bullet points will be updated as follows: • "AG = Total glazing area • CFA = Total conditioned floor area • FA = (Gross above-grade thermal boundary wall area) / (Gross above-grade thermal boundary wall area + 0.5 x Gross below-grade thermal boundary wall area) • F = 1 - 0.44 x (Gross common wall area) / (Gross above-grade thermal boundary wall area + Gross common wall area)" The second set of bullet points will be updated as follows: • "Thermal boundary wall is any wall that separates Conditioned Space from Unconditioned Space, outdoor environment, or the surrounding soil; • Above-grade thermal boundary wall is any portion of a thermal boundary wall not in contact with soil; • Below-grade thermal boundary wall is any portion of a thermal boundary wall in soil contact; and Common wall is the total wall area of walls adjacent to another conditioned living unit, not including foundation walls."
00597	**08/08/2016**	**HERS Index Target Procedure for The State of Florida (Version 3.1, Rev. 06)**	**Clarification**	**Footnote 10 – Updated reference to RESNET standard**
				Issue: Policy Record Entry 00730 contains the most recent resolution of this issue. This issue (ID 00597) is only being retained to maintain a complete Policy Record. The Footnote that contains the reference to RESNET's standard for configuring the HERS Reference Home is outdated now that ANSI/RESNET/ICC Standard 301-2014 has been published. Standard 301, the "Standard for the Calculation and Labeling of the Energy Performance of Low-Rise Residential Buildings using an Energy Rating Index", is the ANSI standard that supersedes RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard.
				Resolution: Policy Record Entry 00730 contains the most recent resolution of this issue. This issue (ID 00597) is only being retained to maintain a complete Policy Record. To clarify how certain parameters of the ENERGY STAR Reference Design should be configured, references to RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard will be replaced with a reference to ANSI/RESNET/ICC Standard 301-2014, as follows: "RESNET requires that all RESNET-accredited Home Energy Rating software programs automatically configure this parameter per ANSI / RESNET / ICC Standard 301-2014 when calculating a HERS index value."

00264	**09/10/2012**	**Florida Program Requirements (Version 3, Rev. 03)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units 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." A footnote will be added to define the term "dwelling unit" that reads: "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." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00548	**07/01/2015**	**Florida Program Requirements (Version 3, Rev. 05)**	**Clarification**	**Certifying Homes Section – Addition or renovated space generally not eligible to be certified**
				Issue: Partners have asked if an addition to an existing dwelling unit or a renovated space within an existing dwelling unit is eligible to be ENERGY STAR certified.
				Resolution: An addition or renovated space within an existing structure is not eligible to earn the ENERGY STAR unless it meets all of the following conditions: (1) the addition or renovated space is itself a self-contained dwelling unit, as defined by the 2009 IECC (i.e., a single unit

				that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation), and (2) the addition or renovated space has a separate mailing address from the existing structure.
00549	**07/01/2015**	**Florida Program Requirements (Version 3, Rev. 05)**	**Clarification**	**Certifying Homes Section – Mini-split / multi-split systems serving multiple dwelling units are central systems**
				Issue: Partners have asked whether a mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units should be classified as a central system. The significance of this classification is that dwelling units in multifamily buildings with 4 or 5 stories above-grade must have their own heating, cooling, and hot water systems, separate from other units, to be eligible to participate in the ENERGY STAR Certified Homes program.
				Resolution: A mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units shall be classified as a central system. Therefore, with such a configuration, dwelling units in multifamily buildings with 4 or 5 stories above-grade would not be eligible to participate in the ENERGY STAR Certified Homes program. However, such multifamily buildings would be eligible to be certified through the Multifamily High Rise program, as long as all other eligibility criteria were met.
00550	**07/01/2015**	**Florida Program Requirements (Version 3, Rev. 05)**	**Clarification**	**Certifying Homes – Shared heating, cooling, & hot water systems**
				Issue: Partners have asked if dwelling units in a multifamily building with 4 units or fewer or with 3 stories or fewer above-grade are eligible to be certified if they share heating, cooling, or water systems.
				Resolution: Dwelling units in any multifamily building with 4 units or fewer, and dwelling units in multifamily buildings with 3 stories or fewer above-grade are eligible to be certified, even if they share heating, cooling, and hot water systems, as long as they meet all program requirements.
00386	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 2 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who operate under a Sampling Provider are permitted to use the RESNET-approved sampling

				protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home. To clarify this intent, the following sentence will be added to the end of Footnote 7: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00387	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. The infiltration rate must also be verified for multifamily dwelling units certified using the Performance Path, if the infiltration rate is designed to be below that of the RESNET HERS Reference Home. Note that the RESNET HERS Reference Home infiltration rate is often significantly higher than the rate specified in the ENERGY STAR Reference Design. Therefore, if the RESNET HERS Reference Home infiltration rate is used in lieu of testing, other energy efficiency features will likely be required to compensate. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00388	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Refinement**	**Step 1 of Performance Path - Reference to Thermal Enclosure System Rater Checklist**
				Issue: Partners have noted that Step 1 of the Performance Path specifies that the Mandatory Requirements for All Qualified Homes in Exhibit 2 are required, but then also specifies that two specific Items in the Thermal Enclosure System Rater Checklist (TES) are also required. This reference to two specific Items in the TES is redundant and may create confusion.
				Resolution: To improve clarity, the reference to Items 1.2 and 2.1 of the TES in Step 1 of the Performance Path will be removed and the first paragraph of Step 1 will be revised as follows: "Using a 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 a HERS Index of 77. Note that, regardless of the measures selected, Mandatory Requirements for All Certified Homes in Exhibit 2 are also required and impose certain constraints on the energy measures selected (e.g., insulation levels, insulation installation quality, window performance, duct leakage)."
00172	**01/15/2012**		**Clarification**	**Partnership, Training, and Credentialing Requirements**

		Florida Program Requirements (Version 3, Rev. 02)		**Issue:** Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.
				Resolution: A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the "ENERGY STAR Performance Path" section and will read as follows: "Partnership, Training, and Credentialing Requirements Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying 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. • 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.resnet.us/energystar."
00265	**09/10/2012**	**Florida Program Requirements (Version 3, Rev. 03)**	**Refinement**	**Partnership, Training, and Credentialing – Rater and Field Inspector training**
				Issue: EPA has identified that the website provided for Raters and Field Inspectors' Version 3 Training requirements is out of date.
				Resolution: Raters and Field Inspectors can find Version 3 Training requirements at www.energystar.gov/newhomestraining. This website will be provided in place of the out of date website.
00170	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If

				modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "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. Qualification shall only 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). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00169	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 01)**	**Change**	**Whole-house mechanical ventilation**
				Issue: Partners have noted that there is an inconsistency between Footnote 17, which reads "To ensure consistent exchange of indoor air, whole-house mechanical ventilation is recommended, but not required" and Section 1 of the HVAC System Quality Installation Contractor Checklist, which requires whole-house mechanical ventilation for all homes.
				Resolution: To correct the inconsistency between Footnote 17 and Section 1 of the HVAC System Quality Installation Contractor Checklist, Footnote 17 will be removed from the Version 3 Program Requirements for Florida. That document, along with the Version 2.5 and Version 3.1 Program Requirements for Florida and the Version 3.1 HERS Index Target Procedure for Florida, will all be re-posted and labeled as Revision 02 of the Florida guidelines. The sole change being made as part of Revision 02 to the Florida guidelines will be to remove Footnote 17 from the Version 3 Program Requirements for Florida.
00173	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 02)**	**Change**	**Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.

				Resolution: To address partners' difficulties meeting the total duct leakage limit, the total duct leakage limit in the Ductwork section of Exhibit 1 will be revised as follows: "Total duct leakage ≤ 8 CFM25 per 100 sq. ft. of conditioned area." Footnote 12 will be shortened to only include guidance related to duct leakage testing protocols: "Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol only after all components of the system have been installed (e.g., air handler and register grilles). Leakage limits shall be assessed on a per-system, rather than per-home, basis." Remaining guidance related to testing duct leakage to the outside will be consolidated in Footnote 13, which will read as follows: "For homes that have ≤ 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area. 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. Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is ≤ 3 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."
00174	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 02)**	**Change**	**Prescriptive Path – Window and Skylight Requirements**
				Issue: Partners have noted that Exhibit 1 requires windows and doors to achieve a U-value ≤ 0.52 and a SHGC ≤ 0.32. In contrast, Footnote 9 and Item 1.1 of the Thermal Enclosure System Rater Checklist indicate that windows and doors shall meet or exceed ENERGY STAR Program Requirements for Residential Windows, Doors, and Skylights – Version 5.0, which are more stringent. Furthermore, Footnote 17 states that all windows and skylights must be ENERGY STAR qualified or meet all specifications for ENERGY STAR qualified windows. As a result, there are conflicting requirements for the performance of windows and skylights.
				Resolution: To resolve the conflicting requirements for the performance of windows and skylights, the first sentence of Footnote 9 will be removed and Footnote 17 will be revised as follows: "For Prescriptive Path: Homes qualified under this version of the guidelines are not required to comply with Thermal Enclosure System Rater Checklist Item 1.1, which states that fenestration shall meet or exceed ENERGY STAR requirements. Raters are permitted to mark 'N/A' for this Checklist Item."
00175	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 02)**	**Refinement**	**Prescriptive Path – ENERGY STAR qualified lighting**
				Issue: The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.

				Resolution: To align with the terminology now used to describe ENERGY STAR qualified lighting products, the lighting requirement in the Florida Builder Option Package will be revised as follows: "Advanced Lighting Package (ALP) or ENERGY STAR qualified light bulbs or fixtures shall be installed in 60% of RESNET-defined Qualifying Light Fixture Locations".
00389	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Refinement**	**Exhibit 2 – Redundant Section header and accompanying text removed**
				Issue: Partners have noted that the Section header and text accompanying Exhibit 2 contain information already found in the Performance Path, Prescriptive Path, and title of Exhibit 2.
				Resolution: The Section header (i.e., "Mandatory Requirements for All ENERY STAR Qualified Homes") and accompanying text (i.e., "As noted in the Performance Path and the Prescriptive Path, all ENERGY STAR Qualified New Homes must meet the requirements of the checklists in Exhibit 2") will be removed to eliminate redundancy.
00390	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Change**	**Exhibit 2 & Footnote 27 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 2 as will Footnote 27, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00391	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Refinement**	**Exhibit 3 – Consolidation of Footnotes**
				Issue: Partners have noted that Exhibit 3 contains its own set of Footnotes separate from the general Footnotes for the rest of the document, which may cause confusion. Furthermore, they have noted that some of these Footnotes are duplicative of the general Footnotes for the rest of the document, others are obsolete, and others are specific to Exhibit 3.
				Resolution: To improve the clarity of the document, Footnote 1 of Exhibit 3 will be moved to the general Footnotes for the rest of the document and renumbered accordingly. Footnote 2 of Exhibit 3, which is duplicative of the general Footnote 11, will be deleted and Footnote 11 will be referenced instead. Footnote 3 of Exhibit 3, which allowed advance labeling of homes under Version 2.5 and prohibited homes from being qualified under Version 3 until January 1, 2012, is no longer applicable and will be removed.

				Footnote 4 of Exhibit 3, which allowed labeling of homes under Version 3 prior to July 1, 2012 where a utility or state sponsor was mandating or incentivizing early adoption, is no longer applicable and will be removed.
00171	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Footnote 7d - Minimum insulation requirements when using a total UA calculation**
				Issue: Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that "while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated."
				Resolution: To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 7d will be revised as follows: "…Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated..."
00266	**09/10/2012**	**Florida Program Requirements (Version 3, Rev. 03)**	**Clarification**	**Footnote 6 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 6, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 6 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. 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."
00426	**09/23/2013**	**Florida Program Requirements (Version 3, Rev. 05)**	**Change**	**Footnote 8d – Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Both the Performance Path and Prescriptive Path already define minimum performance limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than these limits from contributing to the total UA of the home.

				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define minimum performance limits for fenestration U-factor and SHGC, fenestration that does exceed these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 8d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method."
00267	**09/10/2012**	**Florida Program Requirements (Version 3, Rev. 03)**	**Refinement**	**Footnote 10 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 10.
				Resolution: The word "were" in Footnote 10 will be revised to "where".
00392	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Footnote 12 - Applicability of thermostats with 'Adaptive Recovery' technology**
				Issue: Partners have asked if Footnote 12, which states: "For homes with heat pumps, the thermostat shall have 'Adaptive Recovery' technology to prevent the excessive use of electric backup heating," is applicable to both air-source and ground-source heat pumps.
				Resolution: The requirement for thermostats with 'Adaptive Recovery' technology applies to any heat pump with an electric resistance heating element used to supplement the capacity of the heat pump, regardless of whether the heat pump is air-source or ground-source. Note that such a thermostat is not required for a home with a heat pump that only includes an electric resistance heating element used during compressor failure (i.e., emergency heat). To clarify when this requirement applies, Footnote 12 will be revised as follows: "For homes with heat pumps that contain an electric resistance heating element used to supplement the capacity of the heat pump, the thermostat shall have 'Adaptive Recovery' technology to prevent excessive use of the heating element."

00092	**07/25/2011**	**Florida Program Requirements (Version 2.5, Rev. 03)**	**Clarification**	**Footnote 3 – Timeline for low-income projects**
				Issue: Partners have asked EPA to clarify several aspects of the extended Version 2 timeline for low-income projects financed through low-income housing agencies, including the following: • What kind of organization qualifies as a “low-income housing agency”? • What kind of financial support qualifies as “funding”? • How should builders and developers document when funding applications are received by funding agencies? What is the overall intent of the extended Version 2 timeline for this kind of project?
				Response: By "low-income housing agency,” EPA means any entity that provides public funding to nonprofit builders and developers for the construction of housing projects specifically for low-income tenants. By "funding," EPA means public funding such as public grants or Low Income Housing Tax Credit (LIHTC) funds. The funding must be critical to the project financing, such as financing land acquisition, infrastructure, or construction. Funding intended for noncritical activities, such as for providing mortgage financing to homebuyers, does not qualify for the extended timeline. It is the responsibility of the funding applicant (the developer and builder) to keep on file written proof that they applied for public funds for use in constructing a low-income housing project to be ENERGY STAR qualified under Version 2. This documentation should identify the funding agency and the date when the funding application was received by the funding agency. This could be a copy of the funding application itself that has been date stamped by the funding agency. If there is no documentation that indicates when the funding application was received by the funding agency, there should at least be documentation that indicates when the funding application was sent to the funding agency by the funding applicant. It is the responsibility of the developer and builder to make this documentation available to the Rater (as well as to EPA upon request) so the Rater can verify whether or not the housing project qualifies for this exemption to the national Version 3 implementation timeline. Also, the builder or developer is responsible for providing to the Rater (as well as EPA upon request) a copy of documentation that shows that the funding was awarded prior to completion of the housing project. The intent of the low-income housing exemption to the national Version 3 implementation timeline is to give nonprofit low-income housing builders and developers additional time to build homes to earn the ENERGY STAR label under Version 2 with the understanding that low-income housing projects typically require some form of public funding in order to be constructed and that the process for obtaining public funding typically adds time to the build-out timeline. EPA decided to provide this exemption based on when the funding application was received as opposed to when the application was approved or when funding was actually

				received in order to avoid penalizing nonprofit low-income housing developers and builders for delays caused by the funding agency in reviewing and approving funding applications.
00677	**06/29/2018**	**Program Requirements for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to “Tropics Program Requirements (Version 3, Rev. 08)”. Additionally, any references to this document in other program documents will be updated to use the updated title.
00746	**09/01/2018**	**Program Requirements for the Tropics (Version 3, Rev. 08)**	**Change**	**Elimination of plant-certification pathway for modular homes**
				Issue: Currently, there are two paths for modular homes to earn ENERGY STAR certification: • A Rater-verification path, where a Rater is responsible for verifying all program requirements. This may require the Rater to complete inspections in the plant for features that are concealed prior to shipment, as well as complete inspections on-site. • A plant-certification path, where a Quality Assurance Provider (QAP) certifies that the plant has processes in place to consistently incorporate ENERGY STAR requirements into their production. In this path, the plant is responsible for the verification of some items, while a Rater is responsible for completing the verification process on-site. The existence of two pathways increases the complexity of the program. Furthermore, in the case of the plant-certification path, the division of verification responsibilities between two different parties has occasionally created confusion. EPA evaluated the use of the plant-certification path by partners, and found that only 36 homes were certified by three plants using this path in 2016. Upon conducting outreach with these three partners, none felt strongly about maintaining this path.
				Resolution: The plant-certification path for modular homes will be eliminated because it is not frequently utilized and may be causing confusion among partners. To further clarify the remaining certification process for modular homes, the Eligibility Requirements section will be updated to explicitly encompass modular homes and the ENERGY STAR Certification Process section will be updated to indicate that 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, the Version of the program requirements applicable to a modular home, which is currently based upon the home’s “sale date”, will be changed to be based upon the “permit date”, to align with the policy for other site-built homes.

				To reflect these changes, the first line of the “Eligibility Requirements” section will be revised as follows: “The following site-built or modular homes are eligible to earn the ENERGY STAR:” The following sentence will be added to Step 4 of the ENERGY STAR Certification Process section: “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. And a new Footnote, Footnote 1, will be added that reads as follows: “A modular home is a prefabricated home that is made of multiple modules or sections that are manufactured and substantially assembled in a manufacturing plant. These pre–built sections are transported to the building site and constructed by a builder to meet all applicable building codes for site–built homes.”
00614	**02/23/2017**	**Program Requirements for the Tropics (Version 3, Rev. 08)**	**Change**	**Eligibility Requirements - Criteria for dwelling units in four and five story buildings**
				Issue: Partners have indicated that the eligibility requirements for dwelling units in four and five story buildings sometimes cause unintended challenges. Currently, dwelling units with their own heating, cooling, and hot water systems are generally required to be certified using the ENERGY STAR certified homes program, while units with shared systems must be certified using the ENERGY STAR Multifamily High-Rise program. Because the requirements are substantially different between the two programs, and the decision to use individual or shared systems is sometimes beyond the control of the design team, including the system type in the eligibility requirements is causing the unintended challenges. Dwelling units with shared systems were initially excluded due to a lack of modeling guidance readily available to ENERGY STAR Raters. With the availability of RESNET’s Guidelines for Multifamily Ratings, modeling guidance is now available to address the most common central heating, cooling and hot water systems used in multifamily buildings.
				Resolution: To address the challenges that partners are experiencing with the current eligibility requirements, the criteria related to heating, cooling, and hot water systems will be removed from the national program requirements. The eligibility requirement in the fourth bullet of the Eligibility Requirements section will be revised to state: “Dwelling units in multifamily buildings with 4 or 5 stories above-grade where dwelling units occupy 80% or more of the occupiable square footage of the building. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met.” Footnote 4 will be revised to state: “These units may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program. If participating in the Certified Homes Program and the dwelling unit is served by a central heating, cooling, or

				hot water system, use of the RESNET Guidelines for Multifamily Ratings for modeling the specified central system(s) is recommended." Footnote 5 will be revised to state: "If permitted prior to July 1, 2012, units in multifamily buildings with 4 or 5 stories above-grade may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program, without assessing whether the 80% threshold has been met."
00615	**02/23/2017**	**Program Requirements for the Tropics (Version 3, Rev. 08)**	**Change**	**Determining stories in multifamily buildings with partial floors**
				Issue: Partners have asked whether partial floors in multifamily buildings (e.g., a penthouse, a loft, or a mezzanine) contribute to the total number of stories for the purposes of determining eligibility to participate in the program.
				Resolution: Not all partial floors in multifamily buildings should contribute to the total number of stories for the purposes of determining eligibility to participate in the program. First, consistent with the 2012 IRC, a loft or mezzanine is defined as an intermediate level or levels between the floor and ceiling of any story with an aggregate floor area of not more than one-third of the area of the room or space in which the level or levels are located. When determining the number of stories of a multifamily building, a partial floor that meets the definition of a loft or mezzanine shall not count as a story. For example, if the lower floor area of a dwelling unit is 100 sq. ft. and a partial second floor is 25 sq. ft., then the partial second floor is 20% of the total floor area of the dwelling unit (25/125 = 20%). Because 20% is less than 33%, the partial second floor is considered a loft or mezzanine and does not count as a story.
00747	**09/01/2018**	**Program Requirements for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Explicit requirement for homes to be registered and receive rating**
				Issue: While implied, there is currently no language in the ENERGY STAR Certification Process section that explicitly requires partners to register homes with an EPA-approved Verification Oversight Organization (VOO) such as RESNET. This step is critical to ensure that the home is encompassed by the quality assurance protocols defined by that VOO.
				Resolution: In order to ensure that ENERGY STAR certified homes are encompassed by a VOO's quality assurance protocols, ENERGY STAR Certified Homes will be explicitly required to receive a rating and be registered with an EPA-approved VOO. The first paragraph under Step 4 of the ENERGY STAR Certification Process will be updated as follows: "4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with the on-site inspection procedures for minimum rated features of an EPA-Approved VOO. Finally, register the rated home with the same EPA-Approved VOO. The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC Design Report."

<table>
<tr><td rowspan="3">00556</td><td rowspan="3">04/01/2016</td><td rowspan="3">Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)</td><td rowspan="3">Refinement</td><td>Incrementing Revision number from 02 to 08</td></tr>
<tr><td>Issue: Partners have asked why the program requirements for this region have a different Revision number than the national program. This misalignment has caused confusion about what the most current program requirements are.</td></tr>
<tr><td>Resolution: In the time since the initial release of the Version 03 Program Requirements, several region-specific programs have been developed. The initial release of each set of regional program requirements occurred at various times, often not in alignment with the release of a Revision to the national program requirements. This naming convention was used so that each regional program would progress from an initial release through subsequent revision numbers (e.g., Rev. 01, 02, 03).
However, partners' primary perception of the program is tied to the inspection checklists. As a result, having the same foundational checklists used in the regional programs and the national program, each with a different Revision number, has caused confusion.
To reduce confusion over the difference in Revision numbers between these regional program requirements and the national program requirements, the next Revision will be incremented from 02 to 08 to align with the national program requirements. As a result, Revision numbers 03 through 07 will not be used.</td></tr>
<tr><td rowspan="3">00557</td><td rowspan="3">04/01/2016</td><td rowspan="3">Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)</td><td rowspan="3">Change</td><td>Regional program requirements extended to Northern Mariana Islands and U.S. Virgin Islands</td></tr>
<tr><td>Issue: Partners in the Northern Mariana Islands and the U.S. Virgin Islands have noted that their climate is similar to that of Guam and requested that they be given the option to use the Guam, Hawaii, and Puerto Rico Program Requirements rather than the National Program Requirements.</td></tr>
<tr><td>Resolution: The Guam, Hawaii, and Puerto Rico Program Requirements will be modified so as to be applicable to the Northern Mariana Islands and the U.S. Virgin Islands. Specifically, all references to the applicable locations will be revised to include the Northern Mariana Islands and the U.S. Virgin Islands.
Additionally, Exhibit will be edited to clarify the implementation schedule for the Northern Mariana Islands and the U.S. Virgin Islands:
<table>
<tr><th>State or Territory</th><th>Version</th><th>Applicable to Homes with the Following Permit Date</th><th>Version Description</th></tr>
<tr><td>NMI & USVI</td><td>Version 3</td><td>On or after 07/01/2016</td><td>ENERGY STAR Program Requirements for the Tropics Version 3, full enforced.</td></tr>
</table></td></tr>
</table>

00558	**04/01/2016**	**Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)**	**Change**	**Use of National Checklists in Tropics**
				Issue: Partners have requested that the inspection checklists from the National Program Requirements be permitted to be used in lieu of those for the Tropics. Their use was requested because of the difficulty of meeting the requirements of the Thermal Comfort System for some homes, and because such homes will include an individual ducted central AC system. As such, each unit will be designed to maintain comfort without the use of the passive ventilation strategies required by the Thermal Comfort System Section, as opposed to a unit without permanently installed AC or AC that does not serve all zones within the dwelling unit.
				Resolution: 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 will be 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 will be added to the end of the Program Requirements for the Tropics 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." Note that the use of the inspection checklists from the National Program Requirements will not affect the requirement to use the ENERGY STAR HERS Index Target for the Tropics, which is based on a reference design specific to that region (e.g., the inclusion of code-required solar water heating).
00393	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)**	**Change**	**Regional guidelines for Guam**
				Issue: Partners in Guam have noted that their climate is similar to that of Puerto Rico and requested that they be given the option to use the Puerto Rico Program Requirements rather than the National Program Requirements.
				Resolution: The following modifications will be made to the Hawaii and Puerto Rico Program Requirements so as to be applicable to Guam: • The document title and all section titles that include "Hawaii and Puerto Rico" will be revised to read "Guam, Hawaii, and Puerto Rico" • The Envelope Section of Exhibit 1 will be revised to read: "Wall Insulation: ≥ R-13 for Hawaii; None required for Puerto Rico and Guam" • The Water Heater Section of Exhibit 1 will be revised to read:

				"In HI, installed system meets Hawaii Solar Water Heater Standard In PR and GU, installed system is SRCC certified and achieves a solar fraction ≥ 0.90" • Because Guam will still be able to be certified under the National Program Requirements, Footnote 26 will be revised as follows: "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." • Additionally, Exhibit 6 will be added to provide the implementation schedule for Guam:

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

00268	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 00)**	**Clarification**	**Eligibility to certify detached structures** **Issue:** Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified. **Resolution:** To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4].

				When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units 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." A footnote will be added to define the term "dwelling unit" that reads: "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." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00559	**04/01/2016**	**Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Certifying Homes Section – Addition or renovated space generally not eligible to be certified**
				Issue: Partners have asked if an addition to an existing dwelling unit or a renovated space within an existing dwelling unit is eligible to be ENERGY STAR certified.
				Resolution: An addition or renovated space within an existing structure is not eligible to earn the ENERGY STAR unless it meets all of the following conditions: (1) the addition or renovated space is itself a self-contained dwelling unit, as defined by the 2009 IECC (i.e., a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation), and (2) the addition or renovated space has a separate mailing address from the existing structure.
00560	**04/01/2016**	**Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Certifying Homes Section – Mini-split / multi-split systems serving multiple dwelling units are central systems**
				Issue: Partners have asked whether a mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units should be classified as a central system. The significance of this classification is that dwelling units in multifamily buildings with 4 or 5 stories above-grade must have their own heating, cooling, and hot water systems, separate from other units, to be eligible to participate in the ENERGY STAR Certified Homes program.
				Resolution: A mini-split / multi-split system that is configured such that one outdoor condenser serves multiple evaporator terminals located in multiple dwelling units shall be classified as a central system. Therefore, with such a configuration, dwelling units in multifamily buildings with 4 or 5 stories above-grade would not be eligible to participate in the ENERGY STAR Certified

				Homes program. However, such multifamily buildings would be eligible to be certified through the Multifamily High Rise program, as long as all other eligibility criteria were met.
00561	**04/01/2016**	**Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Certifying Homes – Shared heating, cooling, & hot water systems**
				Issue: Partners have asked if dwelling units in a multifamily building with 4 units or fewer or with 3 stories or fewer above-grade are eligible to be certified if they share heating, cooling, or water systems.
				Resolution: Dwelling units in any multifamily building with 4 units or fewer, and dwelling units in multifamily buildings with 3 stories or fewer above-grade are eligible to be certified, even if they share heating, cooling, and hot water systems, as long as they meet all program requirements.
00562	**04/01/2016**	**Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)**	**Change**	**Prescriptive Path - Removal of the Prescriptive Path**
				Issue: There are currently two compliance paths available to partners that lead to certification – the Performance Path and the Prescriptive Path. Each offers unique benefits and constraints, and having two paths was intended to provide partners with added flexibility when certifying homes. However, in practice, 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.
				Resolution: To simplify the program, the Prescriptive Path will be removed in Revision 08. Specifically, homes with a permit date on or after 60 days after the release of Rev. 08 will only be permitted to use the Performance Path, which will be renamed the ENERGY STAR Certification Process. To reflect this change, all references to the Prescriptive Path, and any Footnotes that only reference the Prescriptive Path, will be removed from all program documents. Additionally a new Footnote will be added to the 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.”
00394	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.

				Resolution: Per Step 3 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home. To clarify this intent, the following sentence will be added to the end of Footnote 9: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00395	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)**	**Clarification**	**Prescriptive Path - Below-grade wall area for a home with multiple basement spaces**
				Issue: Partners have asked how to determine whether at least half of the basement wall area is below grade for a home with multiple basement spaces.
				Resolution: For a home that has multiple basement spaces, the gross surface area of the walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.
00396	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. The infiltration rate must also be verified for multifamily dwelling units certified using the Performance Path, if the infiltration rate is designed to be below that of the RESNET HERS Reference Home. Note that the RESNET HERS Reference Home infiltration rate is often significantly higher than the rate specified in the ENERGY STAR Reference Design. Therefore, if the RESNET HERS Reference Home infiltration rate is used in lieu of testing, other energy efficiency features will likely be required to compensate. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of a home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00563	**04/01/2016**		**Refinement**	**Performance Path and Footnote 9 – Integration of cover page from Inspection Checklists**

		Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)		**Issue:** Partners have provided consistent feedback that the amount of paperwork required to certify a home should be minimized wherever possible.
				Resolution: As part of a larger effort to reduce the amount of paperwork required to certify a home, the cover page of the Inspection Checklists will be deleted and much of the content will be 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 will be 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 will be 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.”
00564	**04/01/2016**	**Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Performance Path – Modeling requirements for multifamily buildings**
				Issue: Partners have asked if, under the Performance Path, each unit in a multifamily building must be individually modeled to demonstrate compliance with its ENERGY STAR HERS Index Target. The current program requirements do not clearly state whether this is a requirement.
				Resolution: Each dwelling unit in a multifamily building must be individually modeled to demonstrate compliance with its ENERGY STAR HERS Index Target. EPA is aware of two other approaches that have been used by partners in the past, which will no longer be applicable. The first was to generate a single ENERGY STAR HERS index target using a single model for the entire building. While this approach was never explicitly allowed or encouraged, it was also never prohibited. In the time since this issue was identified, RESNET formed a multifamily high-rise working group to provide recommendations on how the HERS methodology should be applied to this sector. One of the recommendations of the working group was to explicitly prohibit modeling of a multifamily residential building in order to determine the HERS Index for that building or to apply that building-level HERS Index to the dwelling units in that building. The second was to model a subset of dwelling units using a policy developed for Version 2 of the national program. This policy was developed primarily to address the challenge that a single set of efficiency measures applied to different dwelling units often results in different HERS index values. Because Version 2 of the program defined a single HERS index target within a climate zone, this variation made it more difficult for partners to select a single set of measures for all multifamily dwelling units. Beginning with Version 3, a dynamic HERS index target is defined for each home. This more easily allows partners to select a single set of measures across all dwelling units. Therefore, the Version 2 policy allowing a subset of dwelling units to be modeled was not intended to be applied to homes certified under v3 and is no longer applicable.
00397	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)**	**Refinement**	**Performance Path – Using software to determine the ENERGY STAR HERS Index Target**
				Issue: Partners have noted that RESNET-accredited rating software programs should be used to determine the ENERGY STAR HERS Index Target.
				Resolution: To clarify that the process of determining the ENERGY STAR HERS Index Target must be completed using a RESNET-accredited rating software program, the phrase “Use a RESNET-accredited Home Energy Rating software program…” will be added to the beginning of Step 1 of the Performance Path.

00398	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)**	**Change**	**Partnership, Training, and Credentialing Requirements**
				Issue: Partners have noted that the Hawaii and Puerto Rico Program Requirements do not contain the Section on Partnership, Training, and Credentialing Requirements found in the National Program Requirements. This Section in the National Program Requirements contains important information for partners and should be included in the Hawaii and Puerto Rico Program Requirements.
				Resolution: A Section on Partnership, Training, and Credentialing Requirements will be added below the ENERGY STAR Performance Path Section as follows: "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. • 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."
00748	**09/01/2018**	**Program Requirements for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Exhibit 1 - ENERGY STAR certified products specification versions**
				Issue: Partners have noted the efficiency levels of ENERGY STAR certified products in Exhibit 1: ENERGY STAR Reference Design Home may not always align with the efficiency levels in the most recent specification of an ENERGY STAR certified product. They have asked why this is the case and whether revisions to ENERGY STAR product specifications impact the program requirements.
				Resolution: Efficiency levels of products described as "ENERGY STAR" in the Reference Design Home aligned with the specifications for the ENERGY STAR certified product when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI target, regardless of any subsequent revisions to ENERGY STAR certified product specifications. This clarification will be reflected in a new Footnote to Exhibit 1: ENERGY STAR Reference Design Home as follows: "Note that the efficiency levels of ENERGY STAR certified products aligned with these product specifications when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI target, regardless of any subsequent revisions to ENERGY STAR

				certified product specifications. EPA recommends, but does not require, that current ENERGY STAR products be included in ENERGY STAR homes. For current ENERGY STAR products, visit www.energystar.gov/products."
00772	**09/01/2018**	**Program Requirements for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Exhibit 1 and Footnote 9 - References updated to latest RESNET standard**
				Issue: This document contains numerous references to the "RESNET Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Therefore, the current references are outdated.
				Resolution: References to the "RESNET Standard" will be updated to the ANSI-standard version. To reflect this change, the following edits will be made: • In the Envelope, Window, & Doors Section: "Insulation levels modeled to Grade I installation per ANSI / RESNET / ICC Standard 301" • In the Lighting & Appliances Section: "ENERGY STAR light bulbs modeled in 80% of ANSI / RESNET / ICC Standard 301-defined Qualifying Light Fixture Locations." • Footnote 9: "…A bedroom is defined by ANSI / RESNET / ICC Standard 301-2014 as…" In addition, where a specific version of Standard 301 is not specified, a new Footnote will be added as follows: "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings is used to model this parameter. "
00399	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)**	**Clarification**	**Exhibit 1 – Infiltration rate**
				Issue: Partners have noted that the requirement for maximum allowable infiltration does not indicate that envelope leakage shall be determined by a Rater using a RESNET- approved testing protocol.
				Resolution: To ensure that envelope leakage is being determined by a Rater using a RESNET-approved testing protocol, the following Footnote will be added to the maximum allowable infiltration rate in the Envelope Section of Exhibit 1: "Envelope leakage shall be determined by a rater using a RESNET-approved testing protocol."
00565	**04/01/2016**	**Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)**	**Change**	**Exhibit 1: Thermostat & Ductwork Section - Duct leakage limits for systems serving small spaces**
				Issue: Partners have indicated that they are having challenges meeting the total duct leakage limits defined in Item 4.1 of the HVAC System Quality Installation Rater Checklist for HVAC systems serving small spaces, such as a multifamily dwelling unit or a small zone within a home that has a dedicated system.

<table>
<tr><td></td><td></td><td></td><td></td><td>While total leakage generally decreases as the amount of floor area served by the system decreases, the total leakage ultimately hits a ‘floor’ – a value that cannot be further decreased without extraordinary effort. This is primarily due to the air handler because the surface area of the enclosure, which generally correlates with the amount of leakage from that component, does not decrease linearly as the amount of floor area served by the system decreases.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Resolution: To address the challenges that partners are experiencing for systems serving small spaces, an absolute amount of allowed duct leakage will be added to the program requirements.
The current limit on total duct leakage at ‘rough-in’ will be 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 will be 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 will be 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.”</td></tr>
<tr><td>00566</td><td>04/01/2016</td><td>Guam, Hawaii, & Puerto Rico Program Requirements (Version 3, Rev. 02)</td><td>Refinement</td><td>Exhibit 2: Updated Terminology For Mandatory Requirements</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Issue: Partners have provided consistent feedback that the workflow required to certify a home should be improved where possible.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Resolution: As part of a larger effort to improve the workflow required to certify a home, the inspection checklists required to certify a home will, in part, be rearranged and renamed to improve the workflow of the certification process. Exhibit 2 will be updated to reflect the revised program documents and who is responsible for completing each of them, as follows:
<table>
<tr><th>Party Responsible</th><th>Mandatory Requirements</th></tr>
<tr><td>Rater</td><td>• Completion of Rater Design Review Checklist for the Tropics
• Completion of Rater Field Checklist for the Tropics</td></tr>
<tr><td>HVAC System Designer</td><td>• Completion of HVAC Design Report</td></tr>
<tr><td>HVAC Installing Contractor</td><td>• Completion of HVAC Commissioning Checklist</td></tr>
<tr><td>Builder</td><td>• Completion of Water Management System Builder Requirements</td></tr>
</table></td></tr>
</table>

00400	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)**	**Change**	**Exhibit 2 & Footnote 23 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 2 as will Footnote 23, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00269	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 00)**	**Refinement**	**Exhibit 3 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 3, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 3. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from the Prescriptive Path section.
00749	**09/01/2018**	**Program Requirements for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Effective Date Section – Revised structure and format of Implementation Timeline**
				Issue: The Effective Date Section varies in structure across program requirements, creating potential confusion. In addition, the implementation timeline information contained within the Exhibit in this Section does not consistently document prior and future Versions of the program, and does not currently incorporate the implementation timelines of both Versions and Revisions.
				Resolution: To help ensure partners are aware of the implementation timeline(s) applicable to the homes that they certify, the Effective Date section will be revised to make the overall structure consistent. Furthermore, the Exhibit containing the implementation timelines will be revised to include the Version(s) and Revision(s) that was applicable for the two years prior to the date of publication, as well as all future Versions and Revisions that are applicable to each location. With this refinement to the Exhibit, the first sentence of Footnote 11 will be removed as the revised Implementation Timeline contains this information. These refinements will be reflected as follows: **Effective Date**

<table>
<tr><td></td><td></td><td></td><td></td><td>To determine the program Version and Revision that a home is required to be certified under, look up the location and permit date of the home in Exhibit 4. Program requirements for other locations can be found at www.energystar.gov/newhomesrequirements.
This Exhibit contains all implementation timelines applicable on or after September 1, 2016. Implementation timelines applicable prior to this date can be obtained by contacting energystarhomes@energystar.gov.
Exhibit 4: ENERGY STAR Certified Homes Implementation Timeline for the Tropics
<table>
<tr><th>State / Territory</th><th>Homes Permitted On or After This Date Must Meet the Adjacent Version & Revision</th><th>Version</th><th>Revision</th></tr>
<tr><td rowspan="2">HI</td><td>07-01-2016</td><td>Tropics v3</td><td>Rev. 08</td></tr>
<tr><td>01-01-2019</td><td>Tropics v3</td><td>Rev. 09</td></tr>
<tr><td rowspan="2">PR</td><td>07-01-2016</td><td>Tropics v3</td><td>Rev. 08</td></tr>
<tr><td>01-01-2019</td><td>Tropics v3</td><td>Rev. 09</td></tr>
<tr><td rowspan="2">GU</td><td>07-01-2016</td><td>Tropics v3</td><td>Rev. 08</td></tr>
<tr><td>01-01-2019</td><td>Tropics v3</td><td>Rev. 09</td></tr>
<tr><td rowspan="2">NMI, USVI</td><td>07-01-2016</td><td>Tropics v3</td><td>Rev. 08</td></tr>
<tr><td>01-01-2019</td><td>Tropics v3</td><td>Rev. 09</td></tr>
</table></td></tr>
<tr><td>00786</td><td>09/01/2018</td><td>Program Requirements for the Tropics (Version 3, Rev. 08)</td><td>Change</td><td>Exhibit 4 - Continued Use of Rev. 08 HVAC Design Report</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Issue: Partners have noted that the HVAC Design Report is only required to be collected once per system design, even if multiple homes are built using this design. Due to the effort required to collect the HVAC Design Report, they have asked whether previously collected Rev. 08 documentation can continue to be used after the release of the next Revision of the program requirements, so long as no aspect of the system design changes.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Resolution: Because the next Revision of the HVAC Design Report will not require collection of any additional information or impose any new requirements, and will maintain or increase compliance tolerances, a design documented using Rev. 08 of the HVAC Design Report would, by definition, meet the requirements of the next Revision. Therefore, previously</td></tr>
</table>

				collected Rev. 08 HVAC Design Reports will be permitted to be used after the release of the next Revision of the program requirements, so long as the no aspect of the system design changes. To reflect this change, a new Footnote will be added to Exhibit 4, as follows: "Homes certified under Rev. 09 of the program requirements are permitted to use either Rev. 08 or 09 of the National HVAC Design Report."
00270	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 00)**	**Clarification**	**Footnote 8 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 8, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 8 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. 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."
00271	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 00)**	**Refinement**	**Footnote 9 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 9.
				Resolution: The word "were" in Footnote 9 will be revised to "where".
00678	**06/29/2018**	**Rater Design Review Checklist for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to "Tropics Rater Design Review Checklist (Version 3, Rev. 08)". Additionally, any references to this document in other program documents will be updated to use the updated title.
00750	**09/01/2018**	**Rater Design Review Checklist for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Checklist separated into standalone document**
				Issue: Partners have requested that this Checklist be separated from the Rater Field Checklist for the Tropics into its own document to better align with the typical certification workflow and because of the potential confusion that results when the two Checklists are within the same document.

				Resolution: To avoid any confusion between this checklist and the Rater Field Checklist for the Tropics, the Checklists will be separated into their own individual documents. Note this will not change the content of the documents, but may result in minor formatting changes.
00681	**06/29/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to "Tropics Rater Field Checklist (Version 3, Rev. 08)". Additionally, any references to this document in other program documents will be updated to use the updated title.
00751	**09/01/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Checklist separated into standalone document**
				Issue: Partners have requested that this Checklist be separated from the Rater Design Review Checklist for the Tropics into its own document to better align with the typical certification workflow and because of the potential confusion that results when the two Checklists are within the same document.
				Resolution: To avoid any confusion between this checklist and the Rater Design Review Checklist for the Tropics, the Checklists will be separated into their own individual documents. Note this will not change the content of the documents, but may result in minor formatting changes.
00753	**09/01/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Change**	**Reference** added to **2016 version of ASHRAE 62.2 alongside 2010 and 2013 versions**
				Issue: Partners have asked if they are permitted to use the 2016 version of ASHRAE 62.2, in addition to the 2010 and 2013 versions, and published addenda.
				Resolution: Because of the significant differences to the ASHRAE 62.2 standard that can occur due to the release of new addenda and new versions, it will be clarified that partners are permitted to, but are not required to, use the latest version (i.e., ASHRAE 62.2-2016) of the standard. To reflect this change, the document will be updated as follows: • Footnote 1 will be revised to say that the Checklist is "…designed to meet the requirements of ASHRAE 62.2-2010 / 2013 / 2016...". • Footnote 23 will be revised to say that "...the prescriptive duct sizing requirements in Table 5.3 of ASHRAE 62.2-2010 / 2013 / 2016 are permitted to be used...". All remaining references to "ASHRAE 62.2-2010" are simply definitions and will remain unchanged.

00756	**09/01/2018**	**HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Updating document title for consistent naming format**
				Issue: Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to “Tropics HERS Index Target Procedure (Version 3, Rev. 08)”. Additionally, any references to this document in other program documents will be updated to use the updated title.
00684	**06/29/2018**	**HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Removal of steps for manual calculation of HERS Index Target**
				Issue: Archive Policy Record entry 00303 states that “the process of determining the ENERGY STAR HERS Index Target must be completed using a RESNET-accredited rating software program, and is no longer permitted to be completed manually”. However, guidance for manual configuration of the HERS Index Target is still provided in this document. Furthermore, there are serval minor differences between this document and the Version 3.1 ENERGY STAR HERS Index Target Procedure.
				Resolution: In order to remove any ambiguity regarding the requirement of determining the HERS Index Target using a RESNET-accredited rating software program and to align with the Version 3.1 ENERGY STAR HERS Index Target Procedure, the following edits will be made: • The word ‘detailed’ will be removed from the first sentence of the document. • The word ‘numerical’ will be added before the phrase “HERS Index value • The phrase “a home can achieve and be certified” will be replaced with “each rated home may achieve to earn the ENERGY STAR” in the first sentence of the document. • The second sentence of the document which reads “The Certification Process provides flexibility to select a custom combination of measures through energy modeling that achieves the required ENERGY STAR HERS Index Target” will be removed. • The third sentence of the document will be refined and will read: “Note that, in addition to meeting the ENERGY STAR HERS Index Target, homes shall also meet all Mandatory Requirements for All Certified Homes in Exhibit 2 of the Tropics Program Requirements for ENERGY STAR Certified Homes, Version 3.” • The second paragraph, which introduces the steps for calculating the ENERGY STAR HERS Index Target, will be refined as follows: “A RESNET-accredited Home Energy Rating software program shall automatically determine (i.e., without relying on a user-configured ENERGY STAR Reference Design) this target for each rated home using the following procedure:” • The first two sentences of step 1 will be reworded and condensed as follows: “The software shall configure the ENERGY STAR Reference Design Home in accordance

				with Exhibit 2, The Expanded ENERGY STAR Reference Design Definition for the Tropics, and calculate its associated numerical HERS index value." The remaining language will be removed from Step 1. • The phrase "the software shall" will be inserted before all three instances of the word "calculate" in steps 2 and 3. Step 4 will be removed.
00757	**09/01/2018**	**HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)**	**Clarification**	**References updated to latest RESNET standard and various parameters clarified**
				Issue: This document contains numerous references to "RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Hence, the current references are outdated. In addition, several parameters require clarification as to how they should be configured in the ENERGY STAR Reference Design Home.
				Resolution: References to "RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard" will be updated to the ANSI-standard version. In addition, references to specific sections of the standard will be replaced with more general references to prevent outdated references as the standard continues to be revised. Finally, the configuration of Service Water Heating Systems and Internal Gains will be clarified. To reflect these clarifications, the following edits will be made: • In Step 2: The first sentence after the equation will read as follows: "For the purposes of this step, the software shall calculate the number of bedrooms and the CFA of the home to be built in accordance with the definitions in ANSI / RESNET / ICC Std. 301 with the following exception..." • In the Glazing: Interior Shade Coefficient Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301" • In the Service Water Heating Systems: Use (Gallons per Day) Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for reduced usage resulting from the dishwasher specified in the Lighting, Appliances, & Internal Gains Section." In addition, this will be associated with a new Footnote as follows: "That is to say, representative of standard-flow plumbing fixtures, reference clothes washer gallons per day, standard distribution system water use effectiveness, a hot water piping ratio of 1.0, no pipe insulation, and no drainwater heat recovery." • Service Water Heating Systems: Tank Temperature Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301".

				• Thermostat: Temperature Setpoints Section: "Same as Energy Rating Reference Home, but with offsets for a programmable thermostat, as defined by ANSI / RESNET / ICC Std. 301" • Lighting, Appliances, & Internal Gains: Internal Gains Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for adjustments for the lighting, refrigerator, dishwasher, and ceiling fans specified in this Section." • Internal Mass Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301". • Footnote 1: The final sentence will read as follows: "The full conditioned floor area should be used when rating the home (e.g., determining compliance with duct leakage requirements)." • Footnote 2: The second sentence will read as follows: "A bedroom is defined by ANSI / RESNET / ICC Std. 301-2014 as a room or space 70 sq. ft. or greater size, with egress window and closet, used or intended to be used for sleeping." • Footnote 10: This Footnote contained the reference to the outdated version of the RESNET standard and will be deleted. In addition to these edits, a new Footnote will be associated with Step 2 and all parameters included above, as follows: "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter."
00567	**04/01/2016**	**Inspection Checklists for GU, HI, & PR (Version 3, Rev. 02)**	**Refinement**	**Incrementing Revision number from 02 to 08**
				Issue: Partners have asked why the program requirements for this region have a different Revision number than the national program. This misalignment has caused confusion about what the most current program requirements are.
				Resolution: In the time since the initial release of the Version 03 Program Requirements, several region-specific programs have been developed. The initial release of each set of regional program requirements occurred at various times, often not in alignment with the release of a Revision to the national program requirements. This naming convention was used so that each regional program would progress from an initial release through subsequent revision numbers (e.g., Rev. 01, 02, 03). However, partners' primary perception of the program is tied to the inspection checklists. As a result, having the same foundational checklists used in the regional programs and the national program, each with a different Revision number, has caused confusion. To reduce confusion over the difference in Revision numbers between these regional program requirements and the national program requirements, the next Revision will be incremented

				from 02 to 08 to align with the national program requirements. As a result, Revision numbers 03 through 07 will not be used.
00568	**04/01/2016**	**Inspection Checklists for GU, HI, & PR (Version 3, Rev. 02)**	**Change**	**Regional program requirements for the Northern Mariana Islands and the U.S. Virgin Islands**
				Issue: Partners in the Northern Mariana Islands and U.S. Virgin Islands have noted that their climate is similar to that of Guam and requested that they be given the option to use the Guam, Hawaii, and Puerto Rico Program Requirements rather than the National Program Requirements.
				Resolution: The Guam, Hawaii, and Puerto Rico Program Requirements will be modified so as to be applicable to the Northern Mariana Islands and the U.S. Virgin Islands. Specifically, all references to the applicable locations will be revised to include the Northern Mariana Islands and the U.S. Virgin Islands.
00569	**04/01/2016**	**Inspection Checklists for GU, HI, & PR (Version 3, Rev. 02)**	**Refinement**	**Cover page – Relocation of content**
				Issue: Partners have provided consistent feedback that the amount of paperwork required to certify a home should be minimized wherever possible.
				Resolution: As part of a larger effort to reduce the amount of paperwork required to certify a home, the cover page of the Inspection Checklists will be deleted and much of the content will be 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 will be moved from the cover page of the Inspection Checklists to Step 4 of the Performance Path 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 requirements." Additionally, the following language about Rater sampling protocols will be moved from the cover page of the Inspection Checklists to Footnote 9 of the Program Requirements for the Tropics: "Raters who operate under a Sampling Provider are permitted to verify any 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 System Commissioning Contractor Checklist are permitted to be verified using a sampling protocol."
00401	**06/01/2013**	**Inspection Checklists for HI & PR (Version 3, Rev. 01)**	**Change**	**Regional guidelines for Guam**
				Issue: Partners in Guam have noted that their climate is similar to that of Puerto Rico and requested that they be given the option to use the Inspection Checklists for HI & PR rather than the National Inspection Checklists.
				Resolution: The following modifications will be made to the Inspection Checklists for HI & PR so as to be applicable to Guam: • The document title and all section titles that include "Hawaii and Puerto Rico" will be revised to read "Guam, Hawaii, and Puerto Rico" • Item 1.1 of The Thermal Comfort System Rater Checklist for HI & PR will be revised to read: "≤ 16,000 btu / h per 1,000 ft² of conditioned floor area for Puerto Rico and Guam"
00402	**06/01/2013**	**Inspection Checklists for HI &**	**Refinement**	**First Page of Each Checklist - Addition of zip code field**
				Issue: Partners have requested that a field be added for the home's zip code at the top of the first page of each of the four inspection checklists.

		PR (Version 3, Rev. 01)		**Resolution:** A field will be added to the top of the first page of each of the four checklists to record the home's zip code, for Raters to use if they so desire.
00403	**06/01/2013**	**Inspection Checklists for HI & PR (Version 3, Rev. 01)**	**Comment**	**Cover Page – Using HERS software programs to verify compliance with Checklist Items**
				Issue: The cover page of the inspection checklists indicates that one requirement for certification is that a home must meet the requirements of the four inspection checklists. Partners have asked if HERS software programs can be used by Raters to ensure compliance with Checklist Items.
				Resolution: HERS software programs may assess compliance with limited Checklist Items, such as the selection of minimum-allowed insulation levels, but none are capable of determining compliance with most of the Checklist Items (e.g., mandatory requirements that require visual inspection). It is the responsibility of the Rater, and not the software, to ensure that each Checklist Item has been verified. The Rater should not presume that a HERS software program has assessed compliance with any Checklist Item unless they receive explicit confirmation from the software provider.
00192	**06/27/2012**	**Inspection Checklists for HI & PR (Version 3, Rev. 00)**	**Change**	**Cover Page - Sampling protocol**
				Issue: Partners have asked for clarification on three issues related to sampling. First, partners have asked if Raters are required to work under an accredited Sampling Provider in order to conduct sampling. EPA's guidance on the use of sampling on the first page of the Inspection Checklists does not explicitly address this issue. Second, partners in California have noted that the Residential Appendix to the California HERS Standards 2.6.2, "HERS Procedures – Group Sample Field Verification and Diagnostic Testing," defines the sampling protocol recognized by the On-Site Inspection Procedures for California HERS Ratings. The ENERGY STAR Version 3 Program Requirements for the State of California stipulates that this standard must be followed. Therefore, for homes in CA there is an inadvertent conflict between the requirement to use the On-Site Inspection Procedures for California HERS Ratings and the requirement to use a RESNET-approved sampling protocol. Third, partners have asked if a Rater can use a sampling protocol to verify items on the Water Management System Builder Checklist. Currently, EPA only allows sampling for the Thermal Enclosure System Rater Checklist and the HVAC System Quality Installation Rater Checklist. Partners have noted that Raters who complete parts of the Water Management System Builder Checklist would still be subject to standards for performing sampling and to oversight through Provider QA. Partners believe that these are adequate assurances that Rater-verified items can be sampled with a high level of confidence in the integrity of the rating.
				Resolution: First, EPA will clarify that Raters are in fact required to work under an accredited Sampling Provider in order to conduct sampling.

				Second, where Raters are required to operate under RESNET-accredited Providers, they shall use the RESNET-approved sampling protocol when sampling is used. Where Raters are required to operate under California Energy Commission-recognized Providers, they shall use the CEC-approved sampling protocol when sampling is used. Third, EPA will clarify that Raters working under an accredited Sampling Provider may use the applicable (either RESNET or California Energy Commission) sampling protocol to verify any inspection checklist item that may be designated “Rater Verified”. Therefore, Raters are permitted to use sampling to verify items on the Thermal Enclosure System Rater Checklist, the HVAC System Quality Installation Rater Checklist, and the Water Management System Builder Checklist. No parties other than Raters shall use sampling. No items on the HVAC System QI Contractor Checklist are permitted to be verified using a sampling protocol because they may only be designated as “Builder Verified” or “Contractor Verified”. Even if a Rater is hired as a subcontractor by a builder or contractor to verify items on the HVAC System Quality Installation Contractor Checklist, the Rater shall not use sampling. The first page of the National Version 3 Inspection Checklists and the Hawaii Version 3 Inspection Checklists will be revised to: “Raters who operate under a Sampling Provider are permitted to use the RESNET-approved sampling protocol for homes located outside California, and the CEC-approved sampling protocol for homes located in CA, to verify any item designated “Rater Verified”. 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 QI Contractor Checklist are permitted to be verified using a sampling protocol because they may only be designated as “Builder Verified” or “Contractor Verified”. As another example, if a Rater verifies 10 items on the Water Management System Builder Checklist and the builder verifies the remaining checklist items, then the applicable (either RESNET or CEC) sampling protocol is permitted to be used only on the 10 Rater-verified items.”
00404	**06/01/2013**	**Inspection Checklists for HI & PR (Version 3, Rev. 01)**	**Change**	**Cover Page & Footnote 1 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA’s Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home’s participation in the Indoor airPLUS program, the phrase “(or Indoor airPLUS Verification Checklist)” will be removed from the cover page of the Inspection Checklists as will Footnote 1, which describes how to use an

				Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00272	**09/10/2012**	**Inspection Checklists for HI & PR (Version 3, Rev. 00)**	**Clarification**	**Footnote 2 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 2, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 2 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. 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."
00273	**09/10/2012**	**Inspection Checklists for HI & PR (Version 3, Rev. 00)**	**Clarification**	**Alignment with National Inspection Checklists**
				Issue: The HVAC System QI Contractor Checklist, HVAC System QI Rater Checklist, and Water Management System Builder Checklist from the National Program are also used in the HI & PR program. Therefore, the edits made to these Checklists apply to both regions. EPA has determined that listing the identical edits twice as separate Policy Record entries will not provide value.
				Resolution: Because the HVAC System QI Contractor Checklist, HVAC System QI Rater Checklist, and Water Management System Builder Checklist from the National Program are also used in the HI & PR program, edits to these Checklists will also apply to the HI & PR region. Rather than listing these edits twice in the Policy Record, they will be listed as edits to the "Inspection Checklists Version 3, Rev. 05" in the Program Document column.
00570	**04/01/2016**	**Thermal Comfort System Rater Checklist for GU, HI, & PR (Version 3, Rev. 02)**	**Change**	**Transition to Rater Design Review and Rater Field Checklist**
				Issue: Partners have provided consistent feedback that, wherever possible, the amount of paperwork required to certify a home should be minimized and the workflow should be aligned with a HERS rating. In the case of the Thermal Comfort System Rater Checklist, partners have suggested that the Items that can be completed at the design stage, prior to the start of construction, be transitioned to one program document and that the Items that must be completed in the field be transitioned to a second program document.
				Resolution: 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 will migrate to two new program documents - the Rater Design Review Checklist and the Rater Field Checklist. The Rater Design Review Checklist will contain 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 will contain the Items that must be completed in the field. Item 1.1 will be incorporated into Item 2.2.7 of the Rater Design Review Checklist for the Tropics and will read as follows: "Total heat gain (3.12) has been reduced through any combination of energy efficient design practices such that the resulting cooling load is: • HI: ≤ 12 kBtuh per 1,000 sq. ft. of conditioned floor area • GU, PR, NMI, and USVI: ≤ 16 kBtuh per 1,000 sq. ft. of conditioned floor area" Items 1.2 and 1.2.1 through 1.2.6 and their associated Footnotes will be moved to Items 4.1 and 4.1.1 through 4.1.6, respectively, on the Rater Design Review Checklist for the Tropics. Items 1.3 and 1.3.1 through 1.3.4 and their associated Footnotes will be moved to Items 4.2 and 4.2.1 through 4.2.4, respectively, on the Rater Design Review Checklist for the Tropics. Item 1.4 and its associated Footnote will be moved to Item 4.3 of the Rater Design Review Checklist for the Tropics. Additionally condensed versions of Items 1.2, 1.2.1 through 1.2.6, 1.3, 1.3.1 through 1.3.4, and 1.4 will be moved to Section 7 of the Rater Field Checklist for the Tropics.
00571	**04/01/2016**	**Thermal Comfort System Rater Checklist for GU, HI, & PR (Version 3, Rev. 02)**	**Refinement**	**Item 1.3.1 Projection Factor sign correction**
				Issue: Partners have noted that the sign of the projection factor requirement in Item 1.3.1 is incorrect. The sign of the projection factor was inadvertently written as "≤" instead of "≥".
				Resolution: The intent of this Item is to reduce solar heat gain through windows using shading. Higher projection factors result in greater shading. Therefore the sign of the requirement will be corrected to reflect this intent. Item 1.3.1 will be revised as follows: "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;"
00655	**02/07/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Item 2.2 – Other strategies for meeting pressure limit**
				Issue: Partners have asked whether other strategies, not listed in Item 2.2, may be used to meet the intent of this Item.
				Resolution: The strategies listed in Item 2.2 were intended as examples that are commonly used, and were not intended to prohibit the use of other strategies. Any strategy or combination

				of strategies may be used to meet the Rater-measured pressure limit. This includes strategies not listed in Item 2.2, such as ventilating or louvered doors. To reflect this clarification, Item 2.2 will be revised to read, "Bedrooms pressure-balanced (e.g., using transfer grills, jump ducts, dedicated return ducts, undercut doors) to achieve a Rater-measured pressure differential ≤ 3 Pa with respect to the main body of the house when all bedroom doors are closed and all air handlers are operating. See Footnote 7 for alternative."
00643	**09/01/2017**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Item 2.2 – Carpet Recommended to be Installed Prior to Bedroom Pressure Test**
				Issue: Raters have asked whether the bedroom pressure-balancing test must be conducted only after any carpeting has been installed.
				Resolution: Testing prior to the installation of carpet may allow additional air to flow beneath the door, resulting in a lower pressure differential (i.e., better result) than after the carpet is installed. However, requiring this test to be completed after the carpet is installed may increase the stringency of the program for some partners, as well as create a logistical challenge in some homes (e.g., where the carpet is installed immediately prior to closing). Therefore, EPA recommends, but does not require, that the bedroom pressure-balancing test be conducted after any carpeting has been installed.
00682	**06/29/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Item 2.2 – Low-end limit for bedroom pressure differential, and test configuration**
				Issue: Partners have asked whether the bedroom pressure-balancing limit of 3 Pa (or 5 Pa for bedrooms with a design airflow ≥ 150 CFM) signifies that any value below +3 Pa (or +5 Pa) is allowed or if it signifies that the pressure must fall between -3 Pa and +3 Pa (or -5 Pa and +5 Pa). Additionally, partners have asked whether doors to rooms that can only be entered from the bedroom (e.g., a closet, a bathroom) should be open or closed when verifying this requirement.
				Resolution: To clarify the intent and ensure more consistent enforcement of this Item, EPA will specify that there is a low-end bedroom pressure-balancing limit of -3 Pa (or -5 Pa for bedrooms with a design airflow ≥ 150 CFM), and a high-end limit of +3 Pa (or +5 Pa for bedrooms with a design airflow ≥ 150 CFM). Any measured value between these limits will meet this requirement. While the primary intent of this Item is to ensure an adequate return-air pathway, a secondary intent is to ensure that the return-air pathway is not so large that it significantly depressurizes the bedroom, potentially increasing infiltration. Additionally, EPA will clarify that when verifying this requirement doors separating bedrooms from the main body of the house (e.g., a door between a bedroom and a hallway) shall be closed and doors to rooms that can only be entered from the bedroom (e.g., a closet, a bathroom) shall be open. Specifying this door configuration will prevent airflow from being restricted within this space, while ensuring more consistent results.

				To clarify this intent, Item 2.2 will be revised as follows: "Bedrooms pressure-balanced (e.g., using transfer grilles, jump ducts, dedicated return ducts, undercut doors) to achieve a Rater-measured pressure differential ≥ -3 Pa and ≤ +3 Pa with respect to the main body of the house when all air handlers are operating. See Footnote 7 for test configuration and an alternative compliance option." And Footnote 7 will be revised as follows: "Item 2.2 does not apply to ventilation or exhaust ducts. For an HVAC system with a multi-speed fan, the highest design fan speed shall be used when verifying this requirement. When verifying this requirement, doors separating bedrooms from the main body of the house (e.g., a door between a bedroom and a hallway) shall be closed and doors to rooms that can only be entered from the bedroom (e.g., a closet, a bathroom) shall be open. As an alternative to the ± 3 Pa limit, a Rater-measured pressure differential ≥ -5 Pa and ≤ +5 Pa is permitted to be used for bedrooms with a design airflow ≥ 150 CFM. The Rater-measured pressure shall be rounded to the nearest whole number to assess compliance."
00773	**09/01/2018**	**Rater Design Review Checklist for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Item 2.2.1 – Design temperature limits added for US Territories**
				Issue: The Design Temperature Limit Reference Guide was updated to include design temperature limits for US Territories, in addition to the limits already included for counties and states. Currently, Item 2.2.1 only references counties and states.
				Resolution: The reference to 'State and County' in Item 2.2.1 will be updated to read 'State and County, or US Territory' to reflect the inclusion of territories in the Design Temperature Limit Reference Guide.
00679	**06/29/2018**	**Rater Design Review Checklist for the Tropics (Version 3, Rev. 08)**	**Change**	**Item 2.2.3 - Increased Tolerance for Conditioned Floor Area used in HVAC Design Report**
				Issue: Partners have noted an issue with the allowable tolerance between the conditioned floor area used in loads and that of the home to be certified. The allowable tolerance does not permit the conditioned floor area used in the loads to be any smaller than the home to be certified, even when such a deviation will not significantly affect the load. For example, if the designer calculates conditioned floor area by measuring from the interior drywall to interior drywall, while the Rater measures from the exterior to the exterior, the designer will end up with a smaller conditioned floor area, resulting in a failure despite negligible impacts on the load calculation.
				Resolution: The tolerance will be changed to allow the conditioned floor area used in loads to fall between 100 sq. ft smaller and 300 sq. ft. larger than the home to be certified. This change recognizes that if the conditioned floor area used in the loads is slightly smaller than the home to be certified, the overall accuracy of the load will not be greatly compromised. To reflect this change, Item 2.2.3 will be revised to read:

				"Conditioned floor area used in loads (3.5) is between 100 sq. ft smaller and 300 sq. ft. larger than the home to be certified"
00680	**06/29/2018**	**Rater Design Review Checklist for the Tropics (Version 3, Rev. 08)**	**Change**	**Item 2.2.4 - Increased tolerance for window area used in HVAC Design Report**
				Issue: Partners have noted two issues with the allowable tolerance between the window area used in loads and that of the home to be certified. The first issue is that the low-end tolerance does not permit the window area used in the loads to be any smaller than the home to be certified, even when such a deviation will not significantly affect the load. For example, if the designer calculates the load with even one less sq. ft. of window area than what the home to be certified contains (e.g., due to an imprecise take-off), then the home would not strictly meet the intent of this item. The second issue is that as the window area in the home increases, the fixed tolerances become increasingly restrictive. That is to say, while the high-end tolerance of 60 sq. ft. may be routinely achievable for a typical home, as the window area increases the 60 sq ft. tolerance becomes a smaller percentage of the overall window area. Outreach was conducted with multiple partners in different climate zones. Partners indicated that it would be helpful to increase the low-end tolerance to allow the window area used in the loads to be slightly smaller than the home to be certified. Partners also indicated that adding a percent-based tolerance would be helpful to address the second issue.
				Resolution: The tolerance will be changed to allow the window area used in loads to fall between 15 sq. ft. smaller and 60 sq. ft. larger than the home to be certified. This change recognizes that if the window area used in the load calculations is slightly smaller than the home to be certified, the overall accuracy of the load will not be greatly compromised. Additionally, for homes to be certified with greater than 500 sq. ft. of window area, the tolerances will be changed to use a percentage of window area. To reflect this change, Item 2.2.4 will be revised to read: "Window area used in loads (3.6) is between 15 sq. ft. smaller and 60 sq. ft. larger than the home to be certified, or, for homes to be certified with > 500 sq. ft. of window area, between 3% smaller and 12% larger"
00644	**09/01/2017**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Item 2.4 and Footnote 14 - Clarification of Units for Duct Leakage Tolerances**
				Issue: Item 2.4 and Footnote 14 refer both to "CFM" and to "CFM25" when defining duct leakage tolerances. The term "CFM25" is intended to represent airflow measured in cubic feet per minute at a pressure of 25 Pa and is, therefore, applicable to all tolerances. The current use of the term "CFM" in some instances may cause confusion.
				Resolution: All instances of the term "CFM" in Item 2.4 and Footnote 14 will be replaced with "CFM25".

00645	**09/01/2017**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Change**	**Item 3.2 – In multifamily, override control not required to be readily-accessible**
				Issue: Partners have asked whether, in multi-family dwelling units, the override control required by Item 3.2 must be readily accessible.
				Resolution: The latest edition of the standard that underpins this requirement, ASHRAE 62.2-2016, provides a new exception related to this issue. Section 4.4 of the standard states the following: "A readily accessible manual ON-OFF control, including but not limited to a fan switch or a dedicated branch-circuit overcurrent device, shall be provided. Controls shall include text or an icon indicating the system's function. Exception: For multifamily dwelling units, the manual ON-OFF control shall not be required to be readily accessible." Therefore, in multi-family dwelling units, the override control is not required to be readily accessible to the occupant. However, EPA recommends but does not require that the control be readily accessible to others (e.g., building maintenance staff) in lieu of the occupant. This exception is permitted to be used regardless of whether the partner's intent is to comply with the remainder of the 2010 or 2013 version of the standard. To reflect this change, a new Footnote will be added to Item 3.2, as follows: "In a multi-family dwelling unit, the override control is not required to be readily accessible to the occupant. However, in such cases, EPA recommends but does not require that the control be readily accessible to others (e.g., building maintenance staff) in lieu of the occupant."
00775	**09/01/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Item 3.7.2 – Air inlet distance from dryer exhaust**
				Issue: The distance that air inlets must be from dryer exhausts was inadvertently left out of Item 3.7.2 during the transition to Revision 08.
				Resolution: To clarify that air inlets must be ≥ 3 ft. from dryer exhausts, Item 3.7.2 will be revised as follows: "Inlet is ≥ 2 ft. above grade or roof deck; ≥ 10 ft. of stretched-string distance from known contamination sources (e.g., stack, vent, exhaust, vehicles) not exiting the roof, and ≥ 3 ft. distance from dryer exhausts and sources exiting the roof."
00776	**09/01/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Change**	**Item 4.1 - Alternative kitchen exhaust rate for Passive House (PHI)**
				Issue: Several partners have requested that the alternative kitchen exhaust flow rate provided in Footnote 23 of Item 4.1 for homes certified by the Passive House Institute US (PHIUS+) be extended to homes certified by the Passive House Institute (PHI). Because homes certified under both organizations have mandatory infiltration limits that are extremely low, builders of these homes often use a continuously running balanced ventilation system to meet local mechanical exhaust requirements for kitchens. In such homes, partners have expressed

				difficulty complying with the ENERGY STAR program's requirements to meet the ASHRAE 62.2 local mechanical exhaust flow rate of 5 kitchen air changes per hour for continuously running fans.
				Resolution: To avoid discouraging participation in the ENERGY STAR certified homes program of these highly efficient homes, the alternative will be extended to Passive House Institute (PHI) homes. This alternative will remain in effect while DOE works to develop an ASRHAE 62.2-complaint solution optimized for very low-load homes. Footnote 23 will be modified to reference PHI certified homes in addition to PHIUS+ homes as follows: "As an alternative to Item 4.1, homes that are PHIUS+ or PHI certified are permitted to use a continuous kitchen exhaust rate of 25 CFM per 2009 IRC Table M1507.3."
00777	**09/01/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Change**	**Item 4.1 and Footnote 23 – Alternative kitchen exhaust rate for select homes**
				Issue: Partners developing homes with extremely tight enclosures and balanced whole-house ventilation and local mechanical exhaust systems have expressed difficultly meeting the requirements of ASHRAE 62.2-2013 for local mechanical kitchen exhaust. The extremely tight enclosure, as tight as a PHIUS+ home, makes it difficult to use an exhaust-only system without pressure relief. Furthermore, balanced ventilation systems often don't have the ability to boost the local exhaust rate to the levels required by ASHRAE 62.2-2013. These constraints are analogous to those of a PHIUS+ or PHI certified home, for which an allowance is already provided to use a continuous kitchen exhaust rate of 25 CFM per 2009 IRC Table M1507.3.
				Resolution: The current allowance to use a continuous kitchen exhaust rate of 25 CFM for PHIUS+ or PHI certified homes will be extended to homes that meet an equivalent infiltration limit and provide both whole-house ventilation and local mechanical kitchen exhaust using a balanced system. To reflect this change, the last sentence of Footnote 23 will be revised as follows: "As an alternative to Item 4.1, homes are permitted to use a continuous kitchen exhaust rate of 25 CFM per 2009 IRC Table M1507.3, if they are either a) PHIUS+ or PHI certified, or b) provide both whole-house ventilation and local mechanical kitchen exhaust using a balanced system, and have a Rater-verified whole-building infiltration rate ≤ 0.05 CFM50 per sq. ft. of Enclosure Area, and a Rater-verified dwelling unit compartmentalization rate ≤ 0.30 CFM50 per sq. ft. of Enclosure Area if multiple dwelling units are present in the building. 'Enclosure Area' is defined as the area of the surfaces that bound the volume being pressurized / depressurized during the test."
00752	**09/01/2018**		**Clarification**	**Item 6.3 and Footnote 29 - Updating Combustion Safety Testing RESNET Reference**

		Rater Field Checklist for the Tropics (Version 3, Rev. 08)		**Issue:** Item 6.3 and Footnote 29 reference 'Section 805' of RESNET's Standards for testing of unvented combustion appliances. RESNET has updated the section number for these tests to '802'.
				Resolution: To correctly refer to the new section number, Item 6.3 will be revised as follows: "If unvented combustion appliances other than cooking ranges or ovens are located inside the home's pressure boundary, the Rater has followed Section 802 of RESNET's Standards, encompassing ANSI/ACCA 12 QH-2014, Appendix A, Section A3 (Carbon Monoxide Test), and verified the equipment meets the limits defined within." Similarly, Footnote 29 will be revised as follows: "Naturally drafted equipment is allowed within the home's pressure boundary in Climate Zones 1-3 if the Rater has followed Section 802 of RESNET's Standards, encompassing ANSI/ACCA 12 QH-2014, Appendix A, Sections A3 (Carbon Monoxide Test) and A4 (Depressurization Test for the Combustion Appliance Zone), and verified that the equipment meets the limits defined within."
00683	**06/29/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Item 5.1 – MERV 6 filters not mandatory for ERV / HRV systems**
				Issue: Partners have asked whether the requirements for a MERV 6 filter apply to ERV and HRV systems that have 10 ft. or more of ductwork. While these systems typically include a filter, they're often not MERV-rated and MERV-rated filters for these systems are not readily available.
				Resolution: Because it is difficult to obtain MERV-rated filters for ERV's and HRV's, and because both ASHRAE Standard 62.2-2010 and its user guide lack any definitive guidance regarding ERV's and HRV's, Footnote 25 will be modified to clarify that such systems are exempted from Item 5.1. To reflect this clarification, Footnote 25 of Rater-F will be revised to state: "Per ASHRAE 62.2-2010, ducted mechanical systems are those that supply air to an occupiable space through ductwork exceeding 10 ft. in length and through a thermal conditioning component, except for evaporative coolers. Systems that do not meet this definition are exempt from this requirement. While filters are recommended for mini-split systems, HRV's, and ERV's, these systems typically do not have MERV-rated filters available for use and are, therefore, also exempted under this version of the requirements. HVAC filters located in the attic shall be considered accessible to the owner if drop-down stairs provide access to attic and a permanently installed walkway has been provided between the attic access location and the filter."
00274	**09/10/2012**		**Clarification**	**Footnote 1 – Reference to requirements for credentialed HVAC contractors**

		Thermal Comfort System Rater Checklist for HI & PR **(Version 3, Rev. 00)**		**Issue:** As noted in Policy Record entry 00227, the description of the requirements for credentialed HVAC contractors will be moved from the cover page of the Inspection Checklists to a new Footnote in the HVAC System QI Rater Checklist. As a result, Footnote 1 of the Thermal Comfort System Rater Checklist for HI & PR will need to be updated to reference this new Footnote.
				Resolution: Because the description of the requirements for credentialed HVAC contractors will move from the cover page of the Inspection Checklists to a new Footnote in the HVAC System QI Rater Checklist, Footnote 1 of the Thermal Comfort System Rater Checklist for HI & PR will be revised as follows: "Cooling loads shall be calculated according to the latest edition of ACCA Manual J. The Rater, builder, and HVAC contractor are permitted to calculate the load. An HVAC contractor is not required to hold specific credentials to complete this calculation. However, note that contractors completing the HVAC System QI Contractor Checklist shall be credentialed per the requirements indicated in Footnote 10 of the HVAC System QI Rater Checklist."
00572	**04/01/2016**	**Thermal Comfort System Rater Checklist for GU, HI, & PR (Version 3, Rev. 02)**	**Change**	**Footnote 4: Simplification of wing wall requirements**
				Issue: Partners have noted two issues related to the requirements for wing walls contained in Footnote 4, which provides guidance for Item 1.2.3. First, the requirement that wing walls extend from the ground to the eve presents architectural and cost challenges, particularly in multi-story homes and buildings. Second, the requirement to always locate wing walls on the windward side of the home is impossible for homes with windows on multiple sides and for multifamily buildings with dwelling units on all sides.
				Resolution: The requirements to include a wing wall that extends from the ground to the eve and on the windward side of the home provide the best outcome. However, research on the relationship between the height of the wing wall and its effectiveness suggests that 80% of its value is achieved with a height equal to the window itself. Therefore, the wing wall height requirement will be reduced to the height of the window itself to ease compliance. In addition, because some homes cannot be configured with wing walls on the windward side, this practice will be changed to a recommendation rather than a requirement. As a result, Footnote 4 will be revised as follows: "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."

00774	**09/01/2018**	**Rater Design Review Checklist for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Footnote 5 - References updated to latest RESNET standard**
				Issue: This document contains a reference to the "RESNET Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Therefore, the current reference is outdated.
				Resolution: The reference to the "RESNET Standard" will be updated to the ANSI-standard version. To reflect this change, the following edit will be made: Footnote 5: "…A bedroom is defined by ANSI / RESNET / ICC Standard 301-2014 as…"
00778	**09/01/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Change**	**Footnotes 9 and 15 - Updated references to Standard 380**
				Issue: Footnotes 9 and 15 refer to generic RESNET-approved test protocols and to test instruments to be used for duct leakage testing and ventilation airflow testing until the publication of ANSI / RESNET / ICC Standard 380. Now that the standard has been published, updating the Footnotes with a reference to Standard 380 will direct Raters to the appropriate test protocols, reduce potential confusion, and ensure that tests are being done consistent with the industry standard.
				Resolution: To direct Raters to the appropriate test protocols, reduce potential confusion, and ensure that tests are being done consistent with the industry standard, Footnotes 9 and 15 will be updated to refer to ANSI / RESNET / ICC Standard 380. To reflect this change, Footnote 9 will be revised as follows: "Items 2.4 and 2.5 only apply to heating, cooling, and balanced ventilation ducts. Duct leakage shall be determined and documented by a Rater using the same version of ANSI / RESNET / ICC Std. 380 that is utilized by RESNET for HERS ratings. Leakage limits shall be assessed on a per-system, rather than per-home, basis. For balanced ventilation ducts that are not connected to space heating or cooling systems, a Rater is permitted to visually verify, in lieu of duct leakage testing, that all seams and connections are sealed with mastic or metal tape and all duct boots are sealed to floor, wall, or ceiling using caulk, foam, or mastic tape." Footnote 15 will be revised as follows: "The whole-house ventilation air flow and local exhaust air flows shall be determined and documented by a Rater using the same version of ANSI / RESNET / ICC Std. 380 that is utilized by RESNET for HERS ratings."
00779	**09/01/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Footnote 22 - Updated kitchen volume definition and minimum kitchen exhaust rate**
				Issue: The definition of "kitchen volume" in Footnote 22 implies, but does not explicitly state, that it must encompass the kitchen exhaust fan and range / oven. On rare occasions, this could result in situations where these components are outside the kitchen volume, reducing the effectiveness of the local mechanical exhaust system. Additionally, when using kitchen volume to determine the required exhaust rate, there is currently no minimum absolute exhaust rate

				specified. As a result, for very small kitchen volumes (i.e., < 300 cu. ft.), the resulting minimum exhaust rate falls below 25 CFM, the minimum rate specified in Table M1507.3 of the 2009 IRC.
				Resolution: To ensure that kitchen local mechanical exhaust meets the program's intent, and to ensure that it does not drop below the requirements of the 2009 IRC, Footnote 22 will be revised to require inclusion of the kitchen exhaust fan and range / oven within the definition of "kitchen volume" and a minimum absolute kitchen exhaust rate will be added. Footnote 22 will be revised as follows: "Kitchen volume shall be determined by drawing the smallest possible rectangle on the floor plan that encompasses all cabinets, pantries, islands, peninsulas, ranges / ovens, and the kitchen exhaust fan, and multiplying by the average ceiling height for this area. In addition, the continuous kitchen exhaust rate shall be ≥ 25 CFM, per 2009 IRC Table M1507.3, regardless of the rate calculated using the kitchen volume. Cabinet volume shall be included in the kitchen volume."
00646	**09/01/2017**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Change**	**Footnote 25 – Alternative compliance option for filter access in attics**
				Issue: Partners have expressed difficulty meeting the filter access requirement in certain homes where the HVAC equipment is located in the attic, such as when space constraints preclude the use of drop-down stairs and the filter cannot be located at the return grille (e.g., due to linear returns or the use of high-MERV filters).
				Resolution: To address this challenge, an alternative compliance option will be added that permits the filter to be located such that it 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. This option will be added to Footnote 25 as follows: "…HVAC filters located in the attic shall be considered accessible to the owner if either: 1) drop-down stairs provide access to attic and a permanently installed walkway has been provided between the attic access location and the filter or 2) 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."
00754	**09/01/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Footnote 25 – Filters recommended, not required, for ducted *and* ductless mini-splits**
				Issue: Partners have asked if both ducted and ductless mini-splits are exempt from the filter requirements of Item 5.1 per Footnote 25.
				Resolution: Consistent with Policy Record Entry 00652, which clarifies that the program's definition of mini-split / multi-split air conditioners and heat pumps is not dependent on duct length, both ducted and ductless systems are recommended but not required to meet the filter requirements of Item 5.1, Footnote 25 will be modified as follows:

				"Based upon ASHRAE 62.2-2010, ducted mechanical systems are those that supply air to an occupiable space with a total amount of supply ductwork exceeding 10 ft. in length and through a thermal conditioning component, except for evaporative coolers. Systems that do not meet this definition are exempt from this requirement. While filters are recommended for mini-split systems, HRV's and ERV's, these systems, ducted or not, typically do not have MERV-rated filters available for use and are, therefore, also exempted under this version of the requirements. HVAC filters located in the attic shall be considered accessible to the owner if either 1) drop-down stairs provide access to attic and a permanently installed walkway has been provided between the attic access location and the filter or 2) 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."
00755	**09/01/2018**	**Rater Field Checklist for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Footnote 25 – Definition of ducted mechanical system dependent on <u>total</u> supply duct length**
				Issue: Partners have asked for clarification of the ductwork length in the program's definition of a ducted mechanical system, which is based on ASHRAE 62.2-2010. Specifically, they have asked if the criteria for "ductwork exceeding 10 ft. in length" refers to the longest single supply duct run of the system or the total length of all supply ductwork in the system.
				Resolution: To clarify that the program's definition of a ducted mechanical system is dependent on whether the <u>total</u> length of all supply ductwork exceeds 10 ft., Footnote 25 will be modified as follows: "Based upon ASHRAE 62.2-2010, ducted mechanical systems are those that supply air to an occupiable space with a total amount of supply ductwork exceeding 10 ft. in length and through a thermal conditioning component, except for evaporative coolers. Systems that do not meet this definition are exempt from this requirement. While filters are recommended for mini-split systems, HRV's and ERV's, these systems, ducted or not, typically do not have MERV-rated filters available for use and are, therefore, also exempted under this version of the requirements. HVAC filters located in the attic shall be considered accessible to the owner if either 1) drop-down stairs provide access to attic and a permanently installed walkway has been provided between the attic access location and the filter or 2) 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."
00573	**04/01/2016**	**HERS Index Target Procedure for Guam, Hawaii, &**	**Refinement**	**Incrementing Revision number from 02 to 08**
				Issue: Partners have asked why the program requirements for this region have a different Revision number than the national program. This misalignment has caused confusion about what the most current program requirements are.

		Puerto Rico (Version 3, Rev. 02)		**Resolution:** In the time since the initial release of the Version 03 Program Requirements, several region-specific programs have been developed. The initial release of each set of regional program requirements occurred at various times, often not in alignment with the release of a Revision to the national program requirements. This naming convention was used so that each regional program would progress from an initial release through subsequent revision numbers (e.g., Rev. 01, 02, 03). However, partners' primary perception of the program is tied to the inspection checklists. As a result, having the same foundational checklists used in the regional programs and the national program, each with a different Revision number, has caused confusion. To reduce confusion over the difference in Revision numbers between these regional program requirements and the national program requirements, the next Revision will be incremented from 02 to 08 to align with the national program requirements. As a result, Revision numbers 03 through 07 will not be used.
00574	**04/01/2016**	**HERS Index Target Procedure for Guam, Hawaii, & Puerto Rico (Version 3, Rev. 02)**	**Change**	**Regional program requirements for the Northern Mariana Islands and the U.S. Virgin Islands**
				Issue: Partners in the Northern Mariana Islands and the U.S. Virgin Islands have noted that their climate is similar to that of Guam and requested that they be given the option to use the Guam, Hawaii, and Puerto Rico Program Requirements rather than the National Program Requirements.
				Resolution: The Guam, Hawaii, and Puerto Rico Program Requirements will be modified so as to be applicable to the Northern Mariana Islands and the U.S. Virgin Islands. Specifically, all references to the applicable locations will be revised to include the Northern Mariana Islands and the U.S. Virgin Islands.
00405	**06/01/2013**	**HERS Index Target Procedure for Hawaii and Puerto Rico (Version 3, Rev.01)**	**Change**	**Regional guidelines for Guam**
				Issue: Partners in Guam have noted that their climate is similar to that of Puerto Rico and requested that they be given the option to use the Puerto Rico Program Requirements rather than the National Program Requirements.
				Resolution: The following modifications will be made to the HERS Index Target Procedure for Hawaii and Puerto Rico so as to be applicable to Guam: • The document title and all section titles that include "Hawaii and Puerto Rico" will be revised to read "Guam, Hawaii, and Puerto Rico" • All references to "Puerto Rico" in Exhibit 2 will be revised to read "Puerto Rico / Guam"
00275	**09/10/2012**		**Refinement**	**Exhibit 1 - Inclusion of zero bedrooms in Benchmark Home exhibit**

		HERS Index Target Procedure for Hawaii and Puerto Rico (Version 3, Rev. 00)		**Issue:** EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 1, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 1. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from Footnote 1.
00575	**04/01/2016**	**HERS Index Target Procedure for Guam, Hawaii, & Puerto Rico (Version 3, Rev. 02)**	**Comment**	**Insulation levels for above and below grade basement walls**
				Issue: Partners have asked if a basement wall must comply with the insulation level requirements for above-grade walls or the insulation requirements for basement walls when the basement walls are partially above ground.
				Resolution: The wall insulation requirements are to be determined for each basement wall, rather than for the basement as a whole. For each basement wall, if ≥ 50% of the surface area is below grade, that wall shall comply with the insulation requirements for basement walls. For each basement wall, if < 50% of the surface area is below grade, that wall shall comply with the insulation requirements for above-grade walls. Note that this policy may result in different insulation levels for different walls within a single basement (e.g., three out of four walls in a walkout basement may be configured with the wall insulation requirements for basements while the fourth wall is configured with the insulation requirements for above-grade walls).
00758	**09/01/2018**	**HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)**	**Change**	**Exhibit 2 - Heating Systems and Cooling Systems – Equipment capacity and EAE**
				Issue: Partners have asked EPA about two attributes of heating and cooling equipment in the ENERGY STAR Reference Design Home. The first is about the acceptable methodologies for selecting the capacity of the heating and cooling equipment. Partners have noted that ANSI / RESNET / ICC Std. 301 has refined language regarding this process. More importantly, Std. 301 does not allow the equipment capacity of the rated home to be used for the Energy Rating Reference Home. This option was included for the ENERGY STAR Reference Design Home when ENERGY STAR Version 3 was first drafted to ease the burden for ERI software programs. However, it appears that none of the software providers are using this option. The second attribute is the Electric Auxiliary Energy (EAE) of non-electric warm furnaces and non-electric boilers. This attribute is not specified, yet can potentially have a significant impact on the efficiency of the home so omitting it could lead to inconsistencies in how the ENERGY STAR Reference Design Home is configured.

				Resolution: To clarify the configuration of these two attributes, the Heating Systems and Cooling Systems Sections will be revised as follows: In the Heating Systems Section, the first row will be revised as follows: “Heating capacity shall be selected in accordance with ACCA Manual S based on building heating and cooling loads calculated in accordance with ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure”. In the Heating Systems Section, a new row will be added at the bottom of this section with the following language: “For non-electric warm furnaces and non-electric boilers, the Electric Auxiliary Energy shall be determined in accordance with the methodology for the Energy Rating Reference Home in ANSI / RESNET / ICC Std. 301, using the capacity determined in this Section”. This will be associated with a new Footnote as follows: “The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter.” In the Cooling Systems Section, the first row will be revised as follows: “Cooling capacity shall be selected in accordance with ACCA Manual S based on building heating and cooling loads calculated in accordance with ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure”.
00598	**08/08/2016**	**HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Exhibit 2 - Service Water Heating Systems**
				Issue: Policy Record Entry 00757 contains the most recent resolution of this issue. This issue (ID 00598) is only being retained to maintain a complete Policy Record. Partners have asked whether the ENERGY STAR Reference Design Definition, which currently sets the hot water use equal to that of the HERS Reference Home, should be changed with the release of ANSI/RESNET/ICC 301-2014, Addendum A-2015. ANSI/RESNET/ICC 301-2014, Addendum A-2015 defines a new methodology for calculating this value by incorporating features including: efficient clothes washers; efficient dishwashers; low-flow showers and faucets; water inlet, setpoint, and use temperatures; drain water heat recovery systems; pipe length; hot water pipe insulation; and the presence of a recirculation system with various control types. When originally defining the ENERGY STAR HERS Reference Home, such features were not credited. While the recognition of such features now allows partners to use them to improve the HERS index of the rated home, it is unclear whether the ENERGY STAR HERS Reference Home now incorporates any of these features.
				Resolution: Policy Record Entry 00757 contains the most recent resolution of this issue. This issue (ID 00598) is only being retained to maintain a complete Policy Record.

				So as not to increase the stringency of the ENERGY STAR program in between versions, the hot water use specified in the ENERGY STAR Reference Design Definition will continue to be set equal to HERS Reference Home. Effectively, this means that the ENERGY STAR HERS index target will be no more stringent than before the release of ANSI/RESNET/ICC 301-2014, Addendum A-2015. Furthermore, partners will be free to incorporate water efficiency features into their rated homes to both improve the HERS index target and help meet the ENERGY STAR HERS index target. Because the hot water use of the ENERGY STAR Reference Design Home will continue to align with the HERS Reference Home, no revisions are needed for that attribute. To reinforce that the ENERGY STAR Reference Design Home will not be configured with a recirculation system, the annual pump energy will be set to 0 kWh. To reflect this, a row will be added to the Service Water Heating System of Exhibit 2 that reads: "Recirculation Pump: 0 kWh per year"
00759	**09/01/2018**	**HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Exhibit 2- Lighting, Appliances, & Internal Gains – Tier I lighting**
				Issue: Partners have asked if the lighting specified in this Section refers to Tier I or Tier II lighting.
				Resolution: To clarify that the lighting in this Section is intended to refer to Tier I lighting, the lighting portion of this Section will be revised as follows: "Lighting: Fraction of qualifying Tier I fixtures to all fixtures in qualifying light fixture locations: 80% for interior; 0% for exterior and garage"
00599	**08/08/2016**	**HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Lighting, Appliances, & Internal Gains - % qualifying lighting**
				Issue: Partners have asked if the percent of qualifying lighting specified in this Section refers to interior, outdoor, or garage lighting.
				Resolution: To clarify that the percent of qualifying lighting in this Section is intended to refer to the interior lighting, the lighting portion of this Section will be revised as follows: "Lighting: Fraction of qualifying fixtures to all fixtures in qualifying light fixture locations: 80% for interior; 0% for exterior and garage"
00760	**09/01/2018**	**HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Exhibit 2 - Lighting, Appliances, & Internal Gains – Dishwasher place setting capacity**
				Issue: Partners have noted that the dishwasher specified in this Section omits a value for dishwasher place setting capacity. This input is required to determine the consumption of the dishwasher, so omitting it could lead to inconsistencies in how the ENERGY STAR Reference Design Home is configured.

				Resolution: To clarify that the dishwasher place setting capacity shall be set equal to the rated home, the dishwasher portion of this Section will be revised as follows: "Dishwasher: 0.66 EF, Place Setting Capacity Same as Rated Home"
00761	**09/01/2018**	**HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)**	**Clarification**	**Exhibit 2 – Clothes washer and dryer configured with same efficiency as Energy Rating Reference Home**
				Issue: Partners have asked for clarification on how the clothes washer and dryer should be configured in the ENERGY STAR Reference Design Home. Currently, no guidance is provided specific to these appliances, yet a footnote states that, "Any parameter not specified in this exhibit shall be set to 'Same as Rated Home'". Therefore, partners have asked whether these appliances should be configured to align with the rated home or with the Energy Rating Reference Home.
				Resolution: The clothes washer and dryer in the ENERGY STAR Reference Design Home will be specified to be the same efficiency as the Energy Rating Reference Home. The Lighting, Appliances & Internal Gains section of Exhibit 2, Expanded ENERGY STAR Reference Design Definition, will be updated to reflect this by including a new cell with the following language: "Clothes Washer and Dryer: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301" A new Footnote will also be added to this cell to clarify that, "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter." Configuring the clothes washer and dryer in the ENERGY STAR Reference Design Home with the same efficiency as the Energy Rating Reference Home will give partners credit towards their ENERGY STAR HERS Index Target when using more efficient clothes washers and dryers. Furthermore, it will maintain the current stringency of the program requirements.
00576	**04/01/2016**	**HERS Index Target Procedure for Guam, Hawaii, & Puerto Rico (Version 3, Rev. 02)**	**Clarification**	**Exhibit 2 - Configuration of thermal boundary in basements**
				Issue: Home energy rating software vendors have asked for clarification when configuring the foundation insulation of the ENERGY STAR Reference Design in a home with a basement. Some home energy rating software programs provide the user with the ability to specify the thermal boundary location independent of the conditioned space boundary in the basement of the rated home, whereas other programs do not.
				Resolution: If software provides the user with the ability to specify the thermal boundary location independent of the conditioned space boundary in the basement of a Rate home (e.g., REM/Rate), then this specified thermal boundary location shall be used to configure the foundation insulation in the ENERGY STAR Reference Design Home.

				If software does not provide the user with this ability, but rather uses the location of the conditioned space boundary to determine the thermal boundary location, then this logic shall be used to configure the foundation insulation in the ENERGY STAR Reference Design Home. The Insulation sub-section of the Foundation Section and the Floors Over Unconditioned Spaces Section of Exhibit 2 shall reference a new Footnote that reads 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."
00577	**04/01/2016**	**HERS Index Target Procedure for Guam, Hawaii, & Puerto Rico (Version 3, Rev. 02)**	**Clarification**	**Exhibit 2 – Heating & cooling equipment configuration when Rated Home has neither**
				Issue: Partners have asked for clarification on how the heating and cooling equipment should be configured in the ENERGY STAR Reference Design Home when the Rated Home does not have heating or cooling equipment.
				Resolution: The same logic that is in BSR/RESNET Standard 301-2013" will be used to configure the ENERGY STAR Reference Design, which should result in a policy that neither penalizes nor rewards homes that do not include heating or cooling equipment. To reflect this clarification, the Heating Systems Section of Exhibit 2 will reference a new Footnote in the System Type subsection 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." And the Cooling Systems Section of Exhibit 2 will reference a new Footnote in the System Type subsection 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."
00578	**04/01/2016**	**HERS Index Target Procedure for Guam, Hawaii, & Puerto Rico (Version 3, Rev. 02)**	**Change**	**Exhibit 2 - Expanded ENERGY STAR Reference Design Definition - Duct leakage limits for systems serving small spaces**
				Issue: Partners have indicated that they are having challenges meeting the total duct leakage limits defined in Item 4.1 of the HVAC System Quality Installation Rater Checklist for HVAC systems serving small spaces, such as a multifamily dwelling unit or a small zone within a home that has a dedicated system.

				While total leakage generally decreases as the amount of floor area served by the system decreases, the total leakage ultimately hits a 'floor' – a value that cannot be further decreased without extraordinary effort. This is primarily due to the air handler because the surface area of the enclosure, which generally correlates with the amount of leakage from that component, does not decrease linearly as the amount of floor area served by the system decreases.
				Resolution: To address the challenges that partners are experiencing for systems serving small spaces, an absolute amount of allowed duct leakage will be added to the program requirements. The current limit on total duct leakage at 'rough-in' will be 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 will be 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 the Thermal Distribution Systems section of Exhibit 2 will be revised as follows: "Duct leakage to Outside: the greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or ≤ 40 CFM25."
00579	**04/01/2016**	**HERS Index Target Procedure for Guam, Hawaii, & Puerto Rico (Version 3, Rev. 02)**	**Change**	**Thermal Distribution Systems Section – Duct location for multifamily dwelling units**
				Issue: Partners have noted that it is unclear how to configure the duct locations of the reference home for homes that do not meet any of the conditions in the 'Supply and Return Duct Locations:' sub-header in the Thermal Distribution Systems Section (e.g., multifamily dwelling unit with conditioned unit below).
				Resolution: 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 will be 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."
00580	**04/01/2016**	**HERS Index Target Procedure for Guam, Hawaii, & Puerto Rico (Version 3, Rev. 02)**	**Change**	**Exhibit 2 – Quantity of ceiling fans**
				Issue: Partners have asked for clarification on the quantity of ceiling fans that the ENERGY STAR Reference Design home should be configured with.
				Resolution: The quantity of ceiling fans in the ENERGY STAR Reference Design home shall equal the number of bedrooms plus one when ceiling fans are present in the Rated home; otherwise the quantity shall be zero. The Ceiling Fan row of the Lighting, Appliances, & Internal Gains Section of Exhibit 2 will be revised as follows to reflect this clarification:

				"Ceiling Fan: 122 CFM per Watt; Quantity = Number of bedrooms + 1 when ceiling fans present in Rated Home; otherwise Quantity = 0".
00276	**09/10/2012**	**HERS Index Target Procedure for Hawaii and Puerto Rico** **(Version 3, Rev. 00)**	**Refinement**	**Footnote 4 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 4.
				Resolution: The word "were" in Footnote 4 will be revised to "where".
00762	**09/01/2018**	**HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)**	**Refinement**	**Footnote 9 - Alignment of window area terminology with Standard 301**
				Issue: The terminology in Footnote 9, used when calculating the Reference Home's total window area for homes with conditioned basements and attached homes, is not fully aligned with Footnote (b) of Table 4.2.2(1) of ANSI / RESNET / ICC Standard 301-2014.
				Resolution: To align with the terminology used in Standard 301 and prevent potential confusion, Footnote 9 will be revised. The equation will be updated as follows: "AG = 0.15 x CFA x FA x F" The first set of bullet points will be updated as follows: • "AG = Total glazing area • CFA = Total conditioned floor area • FA = (Gross above-grade thermal boundary wall area) / (Gross above-grade thermal boundary wall area + 0.5 x Gross below-grade thermal boundary wall area) • F = 1 - 0.44 x (Gross common wall area) / (Gross above-grade thermal boundary wall area + Gross common wall area)" The second set of bullet points will be updated as follows: • "Thermal boundary wall is any wall that separates Conditioned Space from Unconditioned Space, outdoor environment, or the surrounding soil; • Above-grade thermal boundary wall is any portion of a thermal boundary wall not in contact with soil; • Below-grade thermal boundary wall is any portion of a thermal boundary wall in soil contact; and Common wall is the total wall area of walls adjacent to another conditioned living unit, not including foundation walls."
00600	**08/08/2016**		**Clarification**	**Footnote 10 – Updated reference to RESNET standard**

		HERS Index Target Procedure for the Tropics (Version 3, Rev. 08)		**Issue:** Policy Record Entry 00757 contains the most recent resolution of this issue. This issue (ID 00600) is only being retained to maintain a complete Policy Record. The Footnote that contains the reference to RESNET's standard for configuring the HERS Reference Home is outdated now that ANSI/RESNET/ICC Standard 301-2014 has been published. Standard 301, the "Standard for the Calculation and Labeling of the Energy Performance of Low-Rise Residential Buildings using an Energy Rating Index", is the ANSI standard that supersedes RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard.
				Resolution: Policy Record Entry 00757 contains the most recent resolution of this issue. This issue (ID 00600) is only being retained to maintain a complete Policy Record. To clarify how certain parameters of the ENERGY STAR Reference Design should be configured, references to RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard will be replaced with a reference to ANSI/RESNET/ICC Standard 301-2014, as follows: "RESNET requires that all RESNET-accredited Home Energy Rating software programs automatically configure this parameter per ANSI/RESNET/ICC Standard 301-2014 when calculating a HERS index value."
00406	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)**	**Change**	**Regional guidelines for Guam**
				Issue: Partners in Guam have noted that their climate is similar to that of Puerto Rico and requested that they be given the option to use the Puerto Rico Program Requirements rather than the National Program Requirements.
				Resolution: The following modifications will be made to the Hawaii and Puerto Rico Program Requirements so as to be applicable to Guam: • The document title and all section titles that include "Hawaii and Puerto Rico" will be revised to read "Guam, Hawaii, and Puerto Rico" • The Envelope Section of Exhibit 1 will be revised to read: "Wall Insulation: ≥ R-13 for Hawaii; None required for Puerto Rico and Guam" • The Water Heater Section of Exhibit 1 will be revised to read: "In HI, installed system meets Hawaii Solar Water Heater Standard In PR and GU, installed system is SRCC certified and achieves a solar fraction ≥ 0.90" • Because Guam will still be able to be certified under the National Program Requirements, Footnote 26 will be revised as follows:

				"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." • Additionally, Exhibit 6 will be added to provide the implementation schedule for Guam: <table><tr><th>Version</th><th>Applicable to Homes with the Following Permit Date</th><th>Version Description</th></tr><tr><td>Version 2.5</td><td>Before 04/01/2014</td><td>Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Guam, Hawaii, & Puerto Rico Version 3 Inspection Checklists completed but not enforced.</td></tr><tr><td>Version 3</td><td>On or after 04/01/2014</td><td>Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Guam, Hawaii, & Puerto Rico Version 3 Inspection Checklists completed and enforced.</td></tr></table>
00277	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 00)**	**Clarification**	**Eligibility to certify detached structures** **Issue:** Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified. **Resolution:** To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met.

				Dwelling units 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." A footnote will be added to define the term "dwelling unit" that reads: "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." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00407	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 3 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home. To clarify this intent, the following sentence will be added to the end of Footnote 9: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00408	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)**	**Clarification**	**Prescriptive Path - Below-grade wall area for a home with multiple basement spaces**
				Issue: Partners have asked how to determine whether at least half of the basement wall area is below grade for a home with multiple basement spaces.
				Resolution: For a home that has multiple basement spaces, the gross surface area of the walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.

00409	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. The infiltration rate must also be verified for multifamily dwelling units certified using the Performance Path, if the infiltration rate is designed to be below that of the RESNET HERS Reference Home. Note that the RESNET HERS Reference Home infiltration rate is often significantly higher than the rate specified in the ENERGY STAR Reference Design. Therefore, if the RESNET HERS Reference Home infiltration rate is used in lieu of testing, other energy efficiency features will likely be required to compensate. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00410	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)**	**Refinement**	**Performance Path – Using software to determine the ENERGY STAR HERS Index Target**
				Issue: Partners have noted that RESNET-accredited rating software programs should be used to determine the ENERGY STAR HERS Index Target.
				Resolution: To clarify that the process of determining the ENERGY STAR HERS Index Target must be completed using a RESNET-accredited rating software program, the phrase "Use a RESNET-accredited Home Energy Rating software program…" will be added to the beginning of Step 1 of the Performance Path.
00411	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)**	**Clarification**	**Exhibit 1 – Infiltration rate**
				Issue: Partners have noted that the requirement for maximum allowable infiltration does not indicate that envelope leakage shall be determined by a Rater using a RESNET- approved testing protocol.
				Resolution: To ensure that envelope leakage is being determined by a Rater using a RESNET-approved testing protocol, the following Footnote will be added to the maximum allowable infiltration rate in the Envelope Section of Exhibit 1: "Envelope leakage shall be determined by a rater using a RESNET-approved testing protocol."
00412	**06/01/2013**	**Hawaii and Puerto Rico Program Requirements**	**Change**	**Exhibit 2 & Footnote 23 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu

		(Version 2.5, Rev. 01)		of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 2 as will Footnote 23, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00278	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 00)**	**Refinement**	**Exhibit 3 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 3, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 3. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from the Prescriptive Path section.
00279	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 00)**	**Clarification**	**Footnote 8 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 8, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 8 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. 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."
00280	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 00)**	**Refinement**	**Footnote 9 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 9.
				Resolution: The word "were" in Footnote 9 will be revised to "where".
00413	**06/01/2013**		**Clarification**	**Prescriptive Path – Use of sampling protocol**

		Massachusetts Program Requirements (Version 3.1, Rev. 00)		**Issue:** Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 3 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home. To clarify this intent, the following sentence will be added to the end of Footnote 8: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00414	**06/01/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 00)**	**Clarification**	**Prescriptive Path - Below-grade wall area for a home with multiple basement spaces**
				Issue: Partners have asked how to determine whether at least half of the basement wall area is below grade for a home with multiple basement spaces.
				Resolution: For a home that has multiple basement spaces, the gross surface area of the walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.
00415	**06/01/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 00)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. The infiltration rate must also be verified for multifamily dwelling units certified using the Performance Path, if the infiltration rate is designed to be below that of the RESNET HERS Reference Home. Note that the RESNET HERS Reference Home infiltration rate is often significantly higher than the rate specified in the ENERGY STAR Reference Design. Therefore, if the RESNET HERS Reference Home infiltration rate is used in lieu of testing, other energy efficiency features will likely be required to compensate. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the

				RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00416	**06/01/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 00)**	**Change**	**Exhibit 2 & Footnote 21 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 2 as will Footnote 21, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00427	**09/23/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 01)**	**Change**	**Footnote 14d – Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Both the Performance Path and Prescriptive Path already define limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than these limits from contributing to the total UA of the home.
				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define minimum performance limits for fenestration U-factor and SHGC, fenestration that exceeds these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 14d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials.

				The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method.”
00417	**06/01/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 00)**	**Clarification**	**Footnote 18 - Applicability of thermostats with ‘Adaptive Recovery’ technology**
				Issue: Partners have asked if Footnote 18, which states: “For homes with heat pumps, the thermostat shall have ‘Adaptive Recovery’ technology to prevent the excessive use of electric backup heating,” is applicable to both air-source and ground-source heat pumps.
				Resolution: The requirement for thermostats with ‘Adaptive Recovery’ technology applies to any heat pump with an electric resistance heating element used to supplement the capacity of the heat pump, regardless of whether the heat pump is air-source or ground-source. Note that such a thermostat is not required for a home with a heat pump that only includes an electric resistance heating element used during compressor failure (i.e., emergency heat). To clarify when this requirement applies, Footnote 18 will be revised as follows: "For homes with heat pumps that contain an electric resistance heating element used to supplement the capacity of the heat pump, the thermostat shall have ‘Adaptive Recovery’ technology to prevent excessive use of the heating element."
00418	**06/01/2013**	**HERS Index Target Procedure for Massachusetts (Version 3.1, Rev.00)**	**Refinement**	**Exhibit 2, Service Water Heating Systems – Addition of oil water heater Energy Factors**
				Issue: Partners have noted that Energy Factors (EF) for oil hot water heaters are not provided in the Service Water Heating Systems Section of Exhibit 2.
				Resolution: The following rows will be added to the Service Water Heating Systems Section of Exhibit 2 to address the configuration of the ENERGY STAR Reference Design for homes with oil water heating: **Oil Storage Tank Capacity: 30 Gallon 40 Gallon 50 Gallon 60 Gallon 70 Gallon 80 Gallon** **Oil DHW EF:** 0.55 0.53 0.51 0.49 0.47 0.45
00419	**06/01/2013**	**HERS Index Target Procedure for Massachusetts (Version 3.1, Rev.00)**	**Change**	**Exhibit 2, Service Water Heating Systems – Tank size**
				Issue: Partners have noted that the Service Water Heating Systems Section of Exhibit 2 does not contain guidance on which tank size to model.
				Resolution: The System Type definition in the Service Water Heating Systems Section of Exhibit 2 will be revised as follows to address the tank size to be modeled: “System Type: Conventional storage water heater with tank size equal to that of Rated Home, unless Rated Home uses instantaneous water heater, in which case select 40 gallon tank for gas systems and 60 gallon tank for electric systems. Select applicable efficiency from below using tank size of Rated Home. If Rated Home uses instantaneous water heater, then select the efficiency of the 40 gallon tank for gas systems and 60 gallon tank for electric systems.”

00736	**09/01/2018**	**Oregon and Washington Program Requirements (Version 3.2, Rev. 08)**	**Change**	**Elimination of plant-certification pathway for modular homes**
				Issue: Currently, there are two paths for modular homes to earn ENERGY STAR certification: • A Rater-verification path, where a Rater is responsible for verifying all program requirements. This may require the Rater to complete inspections in the plant for features that are concealed prior to shipment, as well as complete inspections on-site. • A plant-certification path, where a Quality Assurance Provider (QAP) certifies that the plant has processes in place to consistently incorporate ENERGY STAR requirements into their production. In this path, the plant is responsible for the verification of some items, while a Rater is responsible for completing the verification process on-site. The existence of two pathways increases the complexity of the program. Furthermore, in the case of the plant-certification path, the division of verification responsibilities between two different parties has occasionally created confusion. EPA evaluated the use of the plant-certification path by partners, and found that only 36 homes were certified by three plants using this path in 2016. Upon conducting outreach with these three partners, none felt strongly about maintaining this path.
				Resolution: The plant-certification path for modular homes will be eliminated because it is not frequently utilized and may be causing confusion among partners. To further clarify the remaining certification process for modular homes, the Eligibility Requirements section will be updated to explicitly encompass modular homes and the ENERGY STAR Certification Process section will be updated to indicate that 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, the Version of the program requirements applicable to a modular home, which is currently based upon the home's "sale date", will be changed to be based upon the "permit date", to align with the policy for other site-built homes. To reflect these changes, the first line of the "Eligibility Requirements" section will be revised as follows: "The following site-built or modular homes are eligible to earn the ENERGY STAR:" The following sentence will be added to Step 4 of the ENERGY STAR Certification Process section: "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." And a new Footnote, Footnote 1, will be added that reads as follows: "A modular home is a prefabricated home that is made of multiple modules or sections that are manufactured and substantially assembled in a manufacturing plant. These pre–built sections

				are transported to the building site and constructed by a builder to meet all applicable building codes for site–built homes.”
00737	**09/01/2018**	**Oregon and Washington Program Requirements (Version 3.2, Rev. 08)**	**Clarification**	**Explicit requirement for homes to be registered and receive rating**
				Issue: While implied, there is currently no language in the ENERGY STAR Certification Process section that explicitly requires partners to register homes with an EPA-approved Verification Oversight Organization (VOO) such as RESNET. This step is critical to ensure that the home is encompassed by the quality assurance protocols defined by that VOO.
				Resolution: In order to ensure that ENERGY STAR certified homes are encompassed by a VOO’s quality assurance protocols, ENERGY STAR Certified Homes will be explicitly required to receive a rating and be registered with an EPA-approved VOO. The first paragraph under Step 4 of the ENERGY STAR Certification Process will be updated as follows: “4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with the on-site inspection procedures for minimum rated features of an EPA-Approved VOO. Finally, register the rated home with the same EPA-Approved VOO. The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC Design Report.”
00738	**09/01/2018**	**Oregon and Washington Program Requirements (Version 3.2, Rev. 08)**	**Refinement**	**Exhibit 1 - ENERGY STAR certified products specification versions**
				Issue: Partners have noted the efficiency levels of ENERGY STAR certified products in Exhibit 1: ENERGY STAR Reference Design Home may not always align with the efficiency levels in the most recent specification of an ENERGY STAR certified product. They have asked why this is the case and whether revisions to ENERGY STAR product specifications impact the program requirements.
				Resolution: Efficiency levels of products described as “ENERGY STAR” in the Reference Design Home aligned with the specifications for the ENERGY STAR certified product when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI target, regardless of any subsequent revisions to ENERGY STAR certified product specifications. This clarification will be reflected in a new Footnote to Exhibit 1: ENERGY STAR Reference Design Home as follows: “Note that the efficiency levels of ENERGY STAR certified products aligned with these product specifications when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI target, regardless of any subsequent revisions to ENERGY STAR certified product specifications. EPA recommends, but does not require, that current ENERGY STAR products be included in ENERGY STAR homes. For current ENERGY STAR products, visit www.energystar.gov/products.”

00771	**09/01/2018**	**Oregon and Washington Program Requirements (Version 3.2, Rev. 08)**	**Refinement**	**Exhibit 1 - References updated to latest RESNET standard**
				Issue: This document contains numerous references to the "RESNET Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Therefore, the current references are outdated.
				Resolution: References to the "RESNET Standard" will be updated to the ANSI-standard version. To reflect this change, the following edits will be made: • In the Envelope, Window, & Doors Section: "Insulation levels modeled at levels below and Grade I installation per ANSI / RESNET / ICC Standard 301" • In the Lighting & Appliances Section: "ENERGY STAR light bulbs modeled in 90% of ANSI / RESNET / ICC Standard 301-defined Qualifying Light Fixture Locations." In addition, where a specific version of Standard 301 is not specified, a new Footnote will be added as follows: "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings is used to model this parameter. "
00739	**09/01/2018**	**Oregon and Washington Program Requirements (Version 3.2, Rev. 08)**	**Refinement**	**Effective Date Section – Revised structure and format of Implementation Timeline**
				Issue: The Effective Date Section varies in structure across program requirements, creating potential confusion. In addition, the implementation timeline information contained within the Exhibit in this Section does not consistently document prior and future Versions of the program, and does not currently incorporate the implementation timelines of both Versions and Revisions.
				Resolution: To help ensure partners are aware of the implementation timeline(s) applicable to the homes that they certify, the Effective Date section will be revised to make the overall structure consistent. Furthermore, the Exhibit containing the implementation timelines will be revised to include the Version(s) and Revision(s) that was applicable for the two years prior to the date of publication, as well as all future Versions and Revisions that are applicable to each location. With this refinement to the Exhibit, the first sentence of Footnote 8 will be removed as the revised Implementation Timeline contains this information. These refinements will be reflected as follows: **Effective Date** To determine the program Version and Revision that a home is required to be certified under, look up the location and permit date of the home in Exhibit 3. Program requirements for other locations can be found at www.energystar.gov/newhomesrequirements.

<table>
<tr><td></td><td></td><td></td><td></td><td>This Exhibit contains all implementation timelines applicable on or after September 1, 2016. Implementation timelines applicable prior to this date can be obtained by contacting energystarhomes@energystar.gov.
Exhibit 3: ENERGY STAR Certified Homes Implementation Timeline for Oregon and Washington
<table>
<tr><th>State / Territory</th><th>Homes Permitted On or After This Date Must Meet the Adjacent Version & Revision</th><th>Version</th><th>Revision</th></tr>
<tr><td>WA</td><td>07-01-2016</td><td>National v3.1</td><td>Rev. 08</td></tr>
<tr><td></td><td>07-01-2018</td><td>Oregon and Washington v3.2</td><td>Rev. 08</td></tr>
<tr><td></td><td>01-01-2019</td><td>Oregon and Washington v3.2</td><td>Rev. 09</td></tr>
<tr><td>OR</td><td>07-01-2016</td><td>National v3.1</td><td>Rev. 08</td></tr>
<tr><td></td><td>01-01-2019</td><td>National v3.1</td><td>Rev. 09</td></tr>
<tr><td></td><td>04-01-2019</td><td>Oregon and Washington v3.2</td><td>Rev. 09</td></tr>
</table></td></tr>
<tr><td>00785</td><td>09/01/2018</td><td>Oregon and Washington Program Requirements (Version 3.2, Rev. 08)</td><td>Change</td><td>Exhibit 3 - Continued Use of Rev. 08 HVAC Design Report</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Issue: Partners have noted that the HVAC Design Report is only required to be collected once per system design, even if multiple homes are built using this design. Due to the effort required to collect the HVAC Design Report, they have asked whether previously collected Rev. 08 documentation can continue to be used after the release of the next Revision of the program requirements, so long as no aspect of the system design changes.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Resolution: Because the next Revision of the HVAC Design Report will not require collection of any additional information or impose any new requirements, and will maintain or increase compliance tolerances, a design documented using Rev. 08 of the HVAC Design Report would, by definition, meet the requirements of the next Revision. Therefore, previously collected Rev. 08 HVAC Design Reports will be permitted to be used after the release of the next Revision of the program requirements, so long as the no aspect of the system design changes. To reflect this change, a new Footnote will be added to Exhibit 3, as follows: “Homes certified under Rev. 09 of the program requirements are permitted to use either Rev. 08 or 09 of the National HVAC Design Report.”</td></tr>
<tr><td>00676</td><td>06/29/2018</td><td></td><td>Refinement</td><td>Updating document title for consistent naming format</td></tr>
</table>

		HERS Index Target Procedure for the States of Oregon and Washington (Version 3.2, Rev. 08)		**Issue:** Partners have noted that there is inconsistency between titles for various program documents, which may cause confusion.
				Resolution: To avoid potential confusion, and use a consistent naming format, the title of this document will be updated to "Oregon and Washington HERS Index Target Procedure (Version 3.2, Rev. 08)". Additionally, any references to this document in other program documents will be updated to use the updated title.
00740	**09/01/2018**	**HERS Index Target Procedure for the States of Oregon and Washington (Version 3.2, Rev. 08)**	**Clarification**	**References updated to latest RESNET standard and various parameters clarified**
				Issue: This document contains numerous references to "RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard". In the time since this document was drafted, RESNET has created an ANSI standard version entitled ANSI / RESNET / ICC Standard 301. Hence, the current references are outdated. In addition, several parameters require clarification as to how they should be configured in the ENERGY STAR Reference Design Home.
				Resolution: References to "RESNET's 2006 Mortgage Industry National Home Energy Rating Systems Standard" will be updated to the ANSI-standard version. In addition, references to specific sections of the standard will be replaced with more general references to prevent outdated references as the standard continues to be revised. Finally, the configuration of Service Water Heating Systems and Internal Gains will be clarified. To reflect these clarifications, the following edits will be made: • In the Glazing: Interior Shade Coefficient Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301" • In the Service Water Heating Systems: Use (Gallons per Day) Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for reduced usage resulting from low-flow plumbing fixtures, R-3 pipe insulation, and the dishwasher specified in the Lighting, Appliances, & Internal Gains Section." In addition, this will be associated with a new Footnote as follows: "That is to say, representative of reference clothes washer gallons per day, standard distribution system water use effectiveness, a hot water piping ratio of 1.0, and no drainwater heat recovery." Furthermore, the existing row stating "Distribution System Type: Standard, without recirculation" will be deleted because this new footnote will be a better explanation of how the ENERGY STAR Reference Design Home should be configured. • Service Water Heating Systems: Tank Temperature Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301".

				• Thermostat: Temperature Setpoints Section: "Same as Energy Rating Reference Home, but with offsets for a programmable thermostat, as defined by ANSI / RESNET / ICC Std. 301" • Lighting, Appliances, & Internal Gains: Internal Gains Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for adjustments for the lighting, refrigerator, dishwasher, and ceiling fans specified in this Section." • Internal Mass Section: "Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301". In addition to these edits, a new Footnote will be associated with all parameters included above and will replace Footnote 7, as follows: "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter."
00741	**09/01/2018**	**HERS Index Target Procedure for the States of Oregon and Washington (Version 3.2, Rev. 08)**	**Change**	**Exhibit 1 - Heating Systems and Cooling Systems – Equipment capacity and EAE**
				Issue: Partners have asked EPA about two attributes of heating and cooling equipment in the ENERGY STAR Reference Design Home. The first is about the acceptable methodologies for selecting the capacity of the heating and cooling equipment. Partners have noted that ANSI / RESNET / ICC Std. 301 has refined language regarding this process. More importantly, Std. 301 does not allow the equipment capacity of the rated home to be used for the Energy Rating Reference Home. This option was included for the ENERGY STAR Reference Design Home when ENERGY STAR Version 3 was first drafted to ease the burden for ERI software programs. However, it appears that none of the software providers are using this option. The second attribute is the Electric Auxiliary Energy (EAE) of non-electric warm furnaces and non-electric boilers. This attribute is not specified, yet can potentially have a significant impact on the efficiency of the home so omitting it could lead to inconsistencies in how the ENERGY STAR Reference Design Home is configured.
				Resolution: To clarify the configuration of these two attributes, the Heating Systems and Cooling Systems Sections will be revised as follows: In the Heating Systems Section, the first row will be revised as follows: "Heating capacity shall be selected in accordance with ACCA Manual S based on building heating and cooling loads calculated in accordance with ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure". In the Heating Systems Section, a new row will be added at the bottom of this section with the following language: "For non-electric warm furnaces and non-electric boilers, the Electric Auxiliary Energy shall be determined in accordance with the methodology for the Energy Rating Reference Home in ANSI / RESNET / ICC Std. 301, using the capacity determined in

				this Section". This will be associated with a new Footnote as follows: "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter." In the Cooling Systems Section, the first row will be revised as follows: "Cooling capacity shall be selected in accordance with ACCA Manual S based on building heating and cooling loads calculated in accordance with ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure".
00742	**09/01/2018**	**HERS Index Target Procedure for the States of Oregon and Washington (Version 3.2, Rev. 08)**	**Clarification**	**Exhibit 1 - Lighting, Appliances, & Internal Gains – Tier I lighting**
				Issue: Partners have asked if the lighting specified in this Section refers to Tier I or Tier II lighting.
				Resolution: To clarify that the lighting in this Section is intended to refer to Tier I lighting, the lighting portion of this Section will be revised as follows: "Lighting: Fraction of qualifying Tier I fixtures to all fixtures in qualifying light fixture locations: 90% for interior; 0% for exterior and garage"
00743	**09/01/2018**	**HERS Index Target Procedure for the States of Oregon and Washington (Version 3.2, Rev. 08)**	**Clarification**	**Exhibit 1 – Clothes washer and dryer configured with same efficiency as Energy Rating Reference Home**
				Issue: Partners have asked for clarification on how the clothes washer and dryer should be configured in the ENERGY STAR Reference Design Home. Currently, no guidance is provided specific to these appliances, yet a footnote states that, "Any parameter not specified in this exhibit shall be set to 'Same as Rated Home'". Therefore, partners have asked whether these appliances should be configured to align with the rated home or with the Energy Rating Reference Home.
				Resolution: The clothes washer and dryer in the ENERGY STAR Reference Design Home will be specified to be the same efficiency as the Energy Rating Reference Home. The Lighting, Appliances & Internal Gains section of Exhibit 1, Expanded ENERGY STAR Reference Design Definition, will be updated to reflect this by including a new cell with the following language: "Clothes Washer and Dryer: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301" A new Footnote will also be added to this cell to clarify that, "The version of ANSI / RESNET / ICC Std. 301 utilized by RESNET for HERS ratings shall be used to configure this parameter." Configuring the clothes washer and dryer in the ENERGY STAR Reference Design Home with the same efficiency as the Energy Rating Reference Home will give partners credit towards their ENERGY STAR HERS Index Target when using more efficient clothes washers and dryers. Furthermore, it will maintain the current stringency of the program requirements.
00744	**09/01/2018**		**Clarification**	**Exhibit 1 - Lighting, Appliances, & Internal Gains – Dishwasher place setting capacity**

		HERS Index Target Procedure for the States of Oregon and Washington (Version 3.2, Rev. 08)		**Issue:** Partners have noted that the dishwasher specified in this Section omits a value for dishwasher place setting capacity. This input is required to determine the consumption of the dishwasher, so omitting it could lead to inconsistencies in how the ENERGY STAR Reference Design Home is configured. **Resolution:** To clarify that the dishwasher place setting capacity shall be set equal to the rated home, the dishwasher portion of this Section will be revised as follows: "Dishwasher: 0.66 EF, Place Setting Capacity Same as Rated Home"
00745	**09/01/2018**	**HERS Index Target Procedure for the States of Oregon and Washington (Version 3.2, Rev. 08)**	**Refinement**	**Footnote 6 - Alignment of window area terminology with Standard 301** **Issue:** The terminology in Footnote 6, used when calculating the Reference Home's total window area for homes with conditioned basements and attached homes, is not fully aligned with Footnote (b) of Table 4.2.2(1) of ANSI / RESNET / ICC Standard 301-2014. **Resolution:** To align with the terminology used in Standard 301 and prevent potential confusion, Footnote 6 will be revised. The equation will be updated as follows: "AG = 0.15 x CFA x FA x F" The first set of bullet points will be updated as follows: • "AG = Total glazing area • CFA = Total conditioned floor area • FA = (Gross above-grade thermal boundary wall area) / (Gross above-grade thermal boundary wall area + 0.5 x Gross below-grade thermal boundary wall area) • F = 1 - 0.44 x (Gross common wall area) / (Gross above-grade thermal boundary wall area + Gross common wall area)" The second set of bullet points will be updated as follows: • "Thermal boundary wall is any wall that separates Conditioned Space from Unconditioned Space, outdoor environment, or the surrounding soil; • Above-grade thermal boundary wall is any portion of a thermal boundary wall not in contact with soil; • Below-grade thermal boundary wall is any portion of a thermal boundary wall in soil contact; and • Common wall is the total wall area of walls adjacent to another conditioned living unit, not including foundation walls."
00181	**01/15/2012**		**Change**	**Total duct leakage limits**

		National Program Requirements (Version 2.5, Rev. 04)		**Issue:** Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: To address partners' difficulties meeting the total duct leakage limit, the total duct leakage limit for Version 3 will be revised as follows: "≤ 8 CFM25 per 100 $ft^2$of CFA"
00182	**01/15/2012**	**National Program Requirements (Version 2.5, Rev. 04)**	**Refinement**	**Exhibit 1 – Terminology related to Performance Path requirements**
				Issues: Partners have noted that the description of the Performance Path requirements in Exhibit 1 of this document do not align with the terminology used in other program documents.
				Resolution: To align the terminology used in this document with that used in other program documents, the Version 2 Performance Path summary will be revised to read, "Fixed HERS Index Target" and the Version 2.5 and Version 3 summary will be revised to read, "Variable HERS Index Target."
00183	**01/15/2012**	**National Program Requirements (Version 2.5, Rev. 04)**	**Refinement**	**Version 3 Training and Credentialing Timeline**
				Issue: Partners have asked for clarification about the dates by which builders must have completed the Version 3 Online Builder Orientation and HVAC contractors must be credentialed by an EPA-recognized oversight organization.
				Resolution: To more clearly explain the dates by which builders must have completed the Version 3 Online Builder Orientation and HVAC contractors must be credentialed by an EPA-recognized oversight organization, the third paragraph of the Version 2.5 National Program Requirements will be revised to read as follows: "While Raters will be required to complete Version 3 training provided by RESNET-accredited training providers by January 1, 2012 to qualify homes under Version 3, it is recommended, but not required, that Raters participate in this training prior to completing the inspection checklists under Version 2.5. Similarly, while builders will be required to complete training provided by EPA by January 1, 2012 and HVAC contractors will be required to complete training provided through industry associations by January 1, 2012to complete the HVAC System Quality Installation Contractor Checklist, it is recommended, but not required, that these parties also participate in this training prior to completing their respective Inspection Checklists"
00184	**01/15/2012**		**Refinement**	**Prescriptive Path – ENERGY STAR qualified lighting**

		National Program Requirements (Version 2.5, Rev. 04)		**Issue:** The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs.
				Resolution: To align terminology across programs, and to encourage partners to use ENERGY STAR qualified light fixtures in addition to qualified light bulbs, the Lighting & Appliances section will be revised to read in part: "ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations." This change also applies to the County-Level Reference Design for all Climate Zones and the Version 3 National Program Requirements.
00185	**01/15/2012**	**National Performance Path (Version 2)**	**Comment**	**Duct insulation levels**
				Issue: Partners have asked what minimum insulation level is required for supply ducts in unconditioned space.
				Resolution: While EPA recommends that all supply ducts in unconditioned space be insulated, there is no mandatory requirement to insulate them under Version 2 of the National Performance Path.
00281	**09/10/2012**	**National Performance Path (Version 2)**	**Comment**	**ENERGY STAR Products Section - Use of ENERGY STAR certified dishwashers**
				Issue: Partners have asked when a dishwasher will be required to be certified under the latest ENERGY STAR specification for dishwashers, Version 5.0, in order to be used as one of the five required ENERGY STAR products in ENERGY STAR Certified Homes.
				Resolution: Because dishwashers certified under the prior version of the specification will remain in stock by distributors for some time, partners are permitted to use any ENERGY STAR labeled dishwasher to meet the requirement to use five or more ENERGY STAR certified light fixtures, appliances, ceiling fans equipped with lighting fixtures, and/or ventilation fans.
00093	**07/25/2011**	**Thermal Bypass Inspection Checklist (Version 2)**	**Clarification**	**Use of infrared thermography**
				Issue: Partners have asked if infrared thermography can be used to complete the Thermal Bypass Checklist.
				Resolution: The Thermal Bypass Inspection Checklist permits alternative methods of meeting the checklist requirements to be used if the Provider deems them to be equivalent, or more stringent, than the Inspection Checklist guidelines. At their discretion, Providers are permitted to allow their Raters to use IR thermography to complete relevant portions of the Thermal Bypass Inspection Checklist for homes qualified

				under Version 2 of the program. EPA recommends, but does not require, that RESNET's Interim Guidelines for Thermographic Inspections of Buildings be used. Regardless of the method used, the Rater and Provider are the parties responsible for verifying that the requirements of the checklist have been completed. Note that EPA is evaluating its policy regarding the use of IR thermography for homes qualified under Version 2.5 and Version 3 of the program, given the increased requirements under these versions and the pending finalization of RESNET's Guidelines for Thermographic Inspections of Buildings.
00094	**07/25/2011**	**Thermal Bypass Inspection Checklist (Version 2)**	**Comment**	**Item 5.4 – Recessed lighting fixtures**
				Issue: EPA was asked whether insulation contact-rated lights that are not also rated as air-tight can fulfill the intent of Item 5.4, "ICAT labeled and sealed to drywall," if all penetrations are sealed with heat-resistant tape or foam.
				Resolution: Light fixtures that are not ICAT rated but are IC rated and appear to be air tight by visual inspection or have product labeling that implies air tightness do not meet the intent of Item 5.4. A visual inspection for air tightness is not the equivalent to an ICAT label. Also, given the low cost differential between ICAT labeled fixtures and IC labeled fixtures that appear air tight, there is little justification for such an allowance.