Current 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 are either pending resolution by EPA or 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.

EPA intends to formally incorporate policy modifications into the next revision of the program documents. Those edits will then be 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 in this document immediately, 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, Comment, or as an Issue Under Review. 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 from 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.

- *Issue Under Review* – An issue that has been submitted and that EPA is still evaluating. Once EPA has evaluated the issue, it will offer a resolution and reclassify the issue using one of the four categories above.

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ID	Log Date	Program Document	Classification	Topic
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.
				  ○ <u>Item 4.2.2</u>: 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.

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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.
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.
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.
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.
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.

<table>
<tr><td></td><td></td><td></td><td></td><td>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 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">00448</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>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 07.</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:
“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>
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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.
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."
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

<table>
<tr><td></td><td></td><td></td><td></td><td>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.</td></tr>
<tr><td rowspan="5">00456</td><td rowspan="5">07/01/2015</td><td rowspan="5">National Program Requirements (Version 3.1, Rev. 05)</td><td rowspan="5">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="2">00458</td><td rowspan="2">07/01/2015</td><td rowspan="2">Inspection Checklists (Version 3, Rev. 07)</td><td rowspan="2">Refinement</td><td>Cover Page – Relocation of content</td></tr>
<tr><td>Issue: Partners have provided consistent feedback that the amount of paperwork required to certify a home should be minimized wherever possible.</td></tr>
</table>

				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 guidelines."

				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."
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."
00017	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Issue Under Review**	**Use of infrared thermography**
				Issue: Partners have asked if infrared thermography can be used to complete the Thermal Enclosure System Rater Checklist.
				Resolution: [Issue under review.]
00460	**07/01/2015**		**Change**	**Transition to Rater Design Review Checklist and Rater Field Checklist**

		Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)		**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.
00461	**07/01/2015**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Section 1 – Allowance for PHIUS+ certified homes to use triple-glazed windows**
				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**	**Change**	**Section 1 – Transition to Section 2 of the Rater Design Review Checklist and Section 1 of the Rater Field Checklist**

		Checklist (Version 3, Rev. 07)		**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"
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**	**Change**	**Section 2 – Transition to Section 3 of the Rater Design Review Checklist and Section 1 of the Rater Field Checklist**

		Checklist (Version 3, Rev. 07)		**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.”

ENERGY STAR Certified Homes Policy Record

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.
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.”
00111	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Issue Under Review**	**Item 2.2 & Item 4.4.1 – Reflective insulation**
				Issue: Partners have asked for permission to use radiant barrier house wrap as reflective insulation for the purpose of fulfilling Items 2.2 and 4.4.1. Policy Record Entry 00024 did not allow this practice because the R-values for reflective insulation products rely on air spaces that are not integral to the products and because the ICC Evaluation Service typically classifies such products as weather barriers rather than as insulation products. In response to this guidance, partners have asked EPA to reevaluate the acceptability of reflective insulation products on the grounds that they reduce heat transfer when installed properly, they are treated as insulation products under the Federal Trade Commission 16 CFR Part 460 – Labeling and Advertising of Home Insulation, and there are applicable standards that govern their specification and installation (ASTM C727 and ASTM C1224).
				Resolution: [Issue under review.]
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.

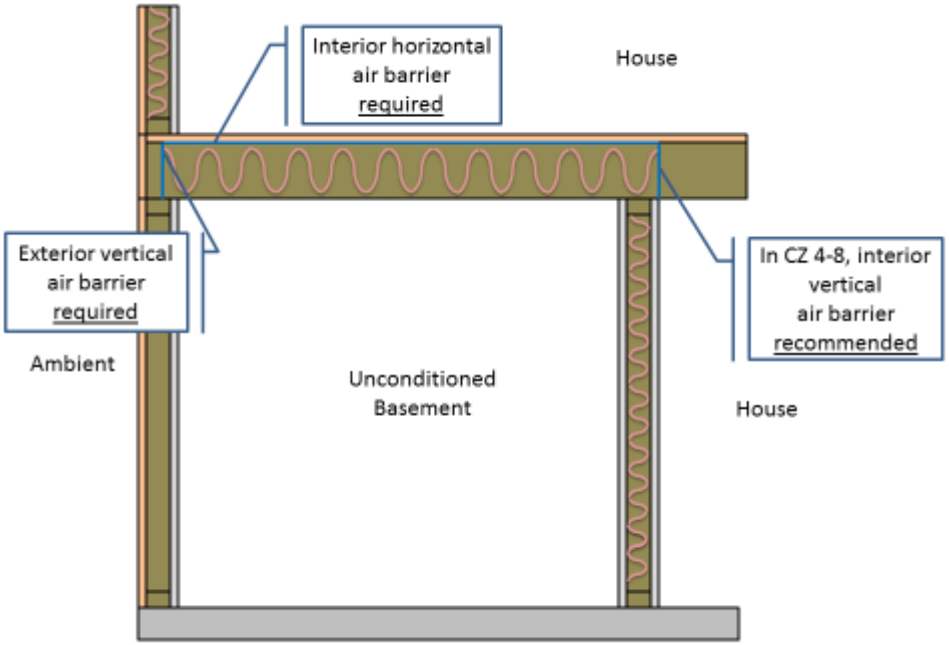


Exhibit 1: Floor Cavity Adjacent to Outdoors & Over Unconditioned Basement

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.

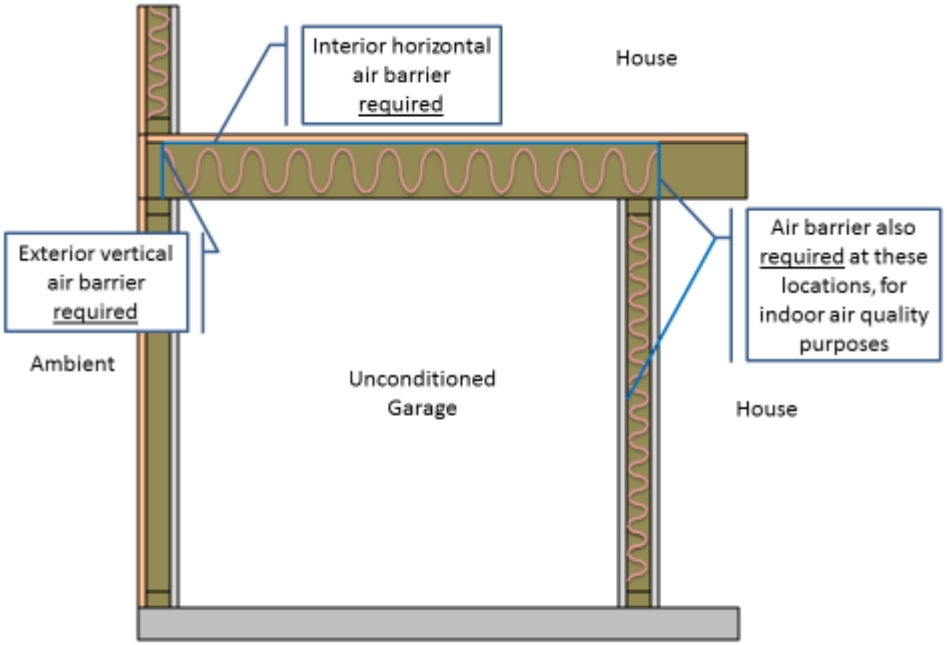


Exhibit 2: Floor Cavity Adjacent to Outdoors & Over Unconditioned Garage

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.

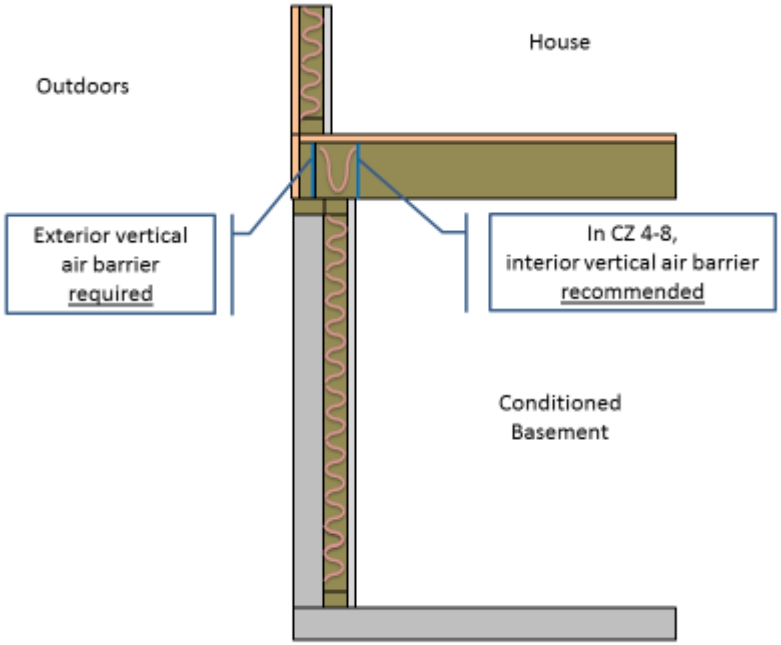


Exhibit 3: Floor Cavity Adjacent to Outdoors

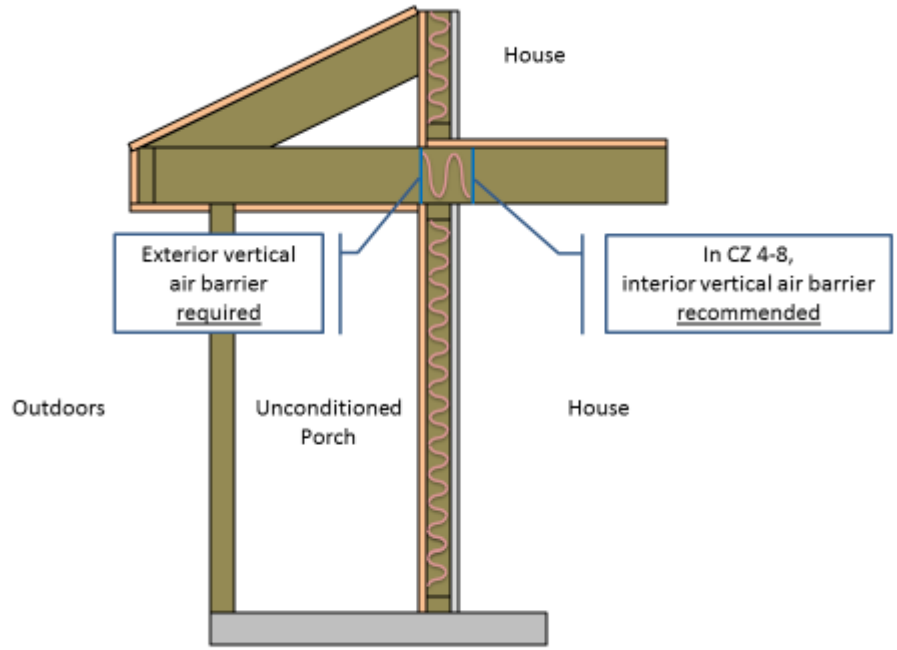


Exhibit 4: Floor Cavity Adjacent to Unconditioned Porch Roof

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.

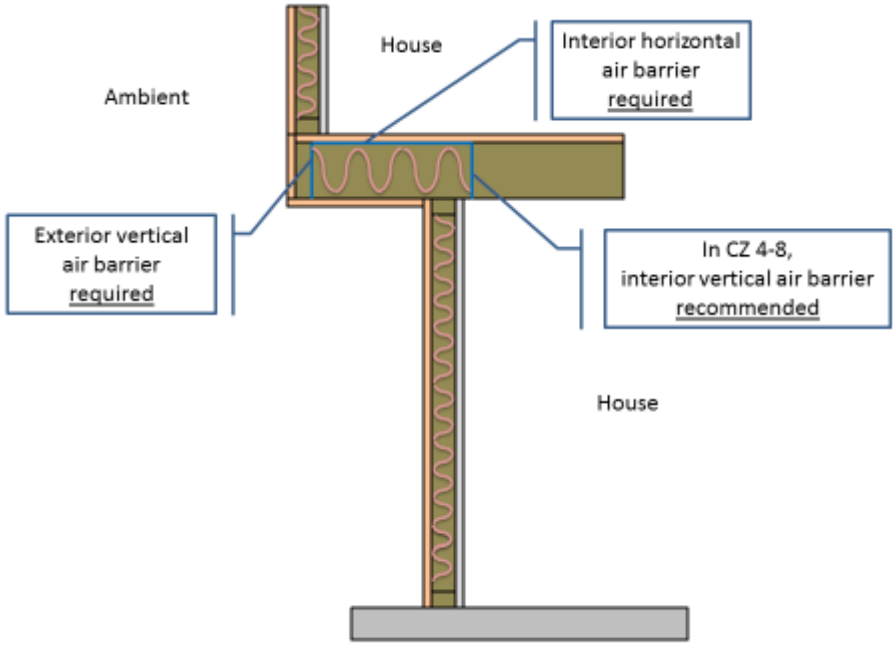


Exhibit 5: Floor Cavity Adjacent to & Over Outdoors

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:

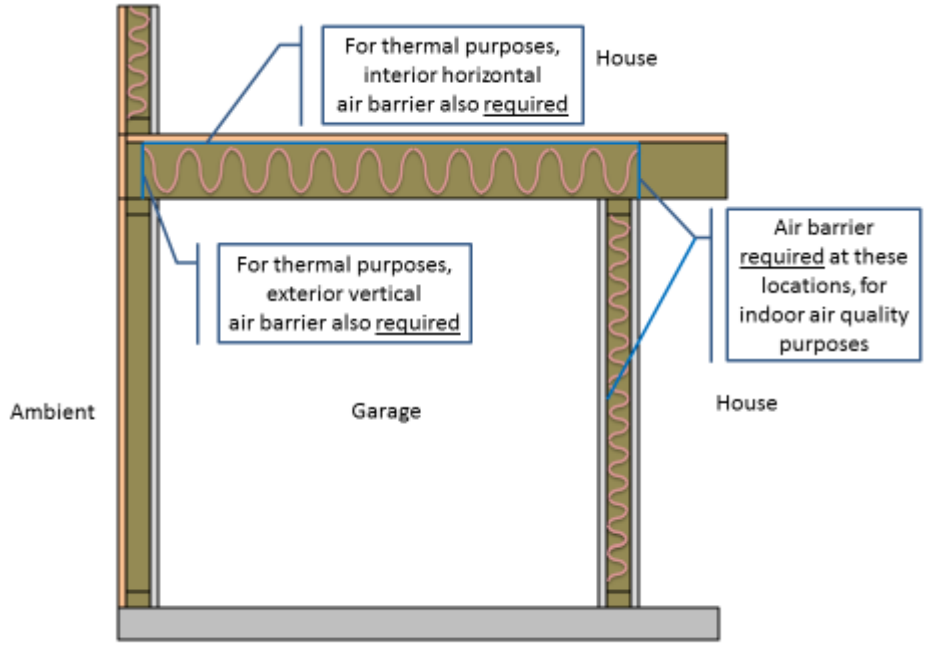
				"Alternatively, an air barrier is permitted to be installed at the exterior horizontal surface of the floor insulation if the insulation is installed in contact with this air barrier, the exterior vertical surfaces of the floor cavity are also insulated, and air barriers are included at the exterior vertical surfaces of this insulation."
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."
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.
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.
00429	**05/01/2014**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Change**	**Item 4.4.5e – Removal of requirement for 24" o.c. spacing or R-20 cavity insulation in CZ 5** **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.
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.
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
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**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)**	**Clarification**	**Item 5.2.1 – Foam gaskets required beneath metal sill plates on concrete or masonry**
				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.
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 Contractor Checklist (Version 3, Rev. 07)**	**Change**	**Checklist Header – Transition to Section 1 of the HVAC Design Report and the HVAC Commissioning Checklist**
				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 #: _____”
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.”
00478	**07/01/2015**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)**	**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 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”.
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**	**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

		Checklist (Version 3, Rev. 07)		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.
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:

Item 4.15: “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

Item 4.21: “Check box of applicable heating sizing limit from chart below:”

When Used for Heating Only	When Paired With Cooling
☐ 100 – 140%	☐ Recommended: 100 – 140% Allowed: 100 – 200%

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)"
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.
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.
				Response: 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.

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)”
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.
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.
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.

				Response: 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.
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**		**Clarification**	**Footnote 1 – Checklist design to meet ASHRAE 62.2**

		HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 07)		**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.
				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..,"
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."
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.
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.
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."
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'."
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."
00501	**07/01/2015**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)**	**Comment**	**Item 4.1 – Total duct leakage testing with toe kick registers**
				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**	**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.

		Rater Checklist (Version 3, Rev. 07)		**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.
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)."
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.
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.
00507	**07/01/2015**	**HVAC System Quality Installation**	**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

		Rater Checklist (Version 3, Rev. 07)		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"
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.
00149	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Issue Under Review**	**Section 11 – Filtration for mechanical ventilation**
				Issue: Partners have asked if Section 11, related to filtration, applies to mechanical ventilation systems.
				Resolution: [Issue under review.]
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**		**Clarification**	**Footnote 1 – Checklist designed to meet ASHRAE 62.2**

		HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)		**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…"
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."
00512	**07/01/2015**	**Water Management System Builder Checklist (Version 3, Rev. 07)**	**Change**	**Item 1.8 – Use of interior drain tiles**
				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."
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**		**Change**	**Item 3.2 – Applicability of gutters & downspouts to porch roofs**

		Water Management System Builder Checklist (Version 3, Rev. 07)		**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.
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.
				Response: 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."
00515	**07/01/2015**	**Water Management System Builder Checklist (Version 3, Rev. 07)**	**Change**	**Item 3.4 – Self-sealing bituminous membranes and equivalents**
				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.
				Response: 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**		**Change**	**Section 4: New Item relocated from HVAC checklist**

		Water Management System Builder Checklist (Version 3, Rev. 07)		**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.
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."

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

		HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 07)		**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."
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."
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 Requirements (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 the Rated Home; otherwise Quantity = 0".
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.
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**		**Clarification**	**Certifying Homes – Shared heating, cooling, & hot water systems**

		California Program Requirements (Version 3, Rev. 04)		**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.
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

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<tr><td></td><td></td><td></td><td></td><td>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.</td></tr>
<tr><td rowspan="4">00533</td><td rowspan="4">07/01/2015</td><td rowspan="4">California Program Requirements (Version 3, Rev. 04)</td><td rowspan="4">Refinement</td><td>Exhibit 1: 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 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 rowspan="3">00534</td><td rowspan="3">07/01/2015</td><td rowspan="3">California Program Requirements (Version 2.5, Rev. 04)</td><td rowspan="3">Clarification</td><td>Certifying Homes Section – Addition or renovated space generally not eligible to be certified</td></tr>
<tr><td>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.</td></tr>
<tr><td>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.</td></tr>
<tr><td rowspan="2">00535</td><td rowspan="2">07/01/2015</td><td rowspan="2">California Program Requirements (Version 2.5, Rev. 04</td><td rowspan="2">Clarification</td><td>Certifying Homes Section – Mini-split / multi-split systems serving multiple dwelling units are central systems</td></tr>
<tr><td>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</td></tr>
</table>

				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.
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.
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-

<table>
<tr><td></td><td></td><td></td><td></td><td>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.</td></tr>
<tr><td rowspan="3">00543</td><td rowspan="3">07/01/2015</td><td rowspan="3">Florida 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="2">00544</td><td rowspan="2">07/01/2015</td><td rowspan="2">HERS Index Target Procedure for The State of Florida</td><td rowspan="2">Clarification</td><td>Exhibit 2 - Configuration of thermal boundary in basements</td></tr>
<tr><td>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.</td></tr>
</table>

		(Version 3.1, Rev. 05)		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**	**HERS Index Target Procedure for The State of Florida (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."

ENERGY STAR Certified Homes Policy Record

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".
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**		**Clarification**	**Certifying Homes Section – Mini-split / multi-split systems serving multiple dwelling units are central systems**

		Florida Program Requirements (Version 3, Rev. 05)		**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.
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”

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- 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>

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<tr><td rowspan="2">00394</td><td rowspan="2">06/01/2013</td><td rowspan="2">Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)</td><td rowspan="2">Clarification</td><td>Prescriptive Path – Use of sampling protocol</td></tr>
<tr><td>

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."

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<tr><td rowspan="2">00395</td><td rowspan="2">06/01/2013</td><td rowspan="2">Hawaii and Puerto Rico Program</td><td rowspan="2">Clarification</td><td>Prescriptive Path - Below-grade wall area for a home with multiple basement spaces</td></tr>
<tr><td>

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.

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		Requirements (Version 3, Rev. 01)		**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.
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."
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."
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.
00401	**06/01/2013**		**Change**	**Regional guidelines for Guam**

		Inspection Checklists for HI & PR (Version 3, Rev. 01)		**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 & PR (Version 3, Rev. 01)**	**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.
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.
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.
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"
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:

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• Additionally, Exhibit 6 will be added to provide the implementation schedule for Guam:
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<tr><td rowspan="3">00407</td><td rowspan="3">06/01/2013</td><td rowspan="3">Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)</td><td rowspan="3">Clarification</td><td>Prescriptive Path – Use of sampling protocol</td></tr>
<tr><td>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.</td></tr>
<tr><td>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.”</td></tr>
<tr><td rowspan="2">00408</td><td rowspan="2">06/01/2013</td><td rowspan="2">Hawaii and Puerto Rico Program Requirements</td><td rowspan="2">Clarification</td><td>Prescriptive Path - Below-grade wall area for a home with multiple basement spaces</td></tr>
<tr><td>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.</td></tr>
</table>

		(Version 2.5, Rev. 01)		**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**	**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.

		(Version 2.5, Rev. 01)		**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 (Version 2.5, 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.