Archive ENERGY STAR Certified Homes Policy Record

How to Use This Document

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

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

Definitions

Each issue listed here is classified as a Change, Clarification, Refinement, or Comment. These are defined as follows:

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

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

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

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

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ID	Log Date	Program Document	Classification	Topic
00298	**06/01/2013**	**All National & Regional Program Documents**	**Comment**	**All pages – Explanation of the dates listed in the footer of the program documents**
				Issue: Partners have asked for an explanation of the dates in the footer of the program documents.
				Resolution: Two dates are listed in the footer of the ENERGY STAR Certified Homes Program documents: the "Revised" date and the "Effective" date. The "Revised" date refers to when that particular document was last updated and released. It is purely informational. The "Effective" date indicates when this revised document must be used to certify homes, which helps to ensure that partners are using the latest information available. That is to say, homes permitted after this "Effective" date must use this revised document, as opposed to the prior revision of the document. Note that EPA recommends, but does not require, using the latest revision prior to this date.
00282	**12/31/2012**	**All National & Regional Program Documents**	**Comment**	**ENERGY STAR certification of homes undergoing a 'gut rehabilitation'**
				Issue: Partners have asked if existing homes are permitted to be ENERGY STAR certified and if so, whether there are any exemptions or alternatives to the guidelines that apply to these homes.
				Resolution: Historically, EPA has allowed existing homes to earn the ENERGY STAR when all program requirements are met. EPA does recognize that some of the current program requirements present unique challenges for existing homes, even those undergoing a gut rehabilitation. Therefore, EPA has assessed whether there are alternative compliance options that would meet the intent of the current requirements and allow these homes to be ENERGY STAR certified. Note that the goal was not to develop a separate label, but rather to allow these homes to achieve the same intent of the ENERGY STAR Certified Home requirements through alternative options. While many requirements were analyzed, the Policy Record only contains the requirements for which an alternative compliance path was created or a clarification needed. While these alternative paths meet the original intent of the Items, they are not necessarily a best practice for new construction. Thus, these alternative options are only available to existing homes. Through this process, EPA has identified key components that may need to be in the scope of an existing home project to meet the ENERGY STAR requirements. These include the following: 1) Remove exterior cladding and the outer surface of roof to install and/or verify the components on the Water Management System Builder Checklist and Thermal Enclosure System Rater Checklist 2) Replace or expose most systems, equipment, or components (e.g. HVAC and

				ducts, windows, insulation) 3) Grade the site and/or provide drains/swales 4) Implement below-grade moisture management strategies EPA acknowledges that additional alternatives, increased flexibility, and alternative assessment protocols would expand the number of homes able to earn the ENERGY STAR. EPA is committed to including additional alternatives as they become available so that more homes may earn the ENERGY STAR label without sacrificing performance.
00001	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Change**	**Program eligibility– Harmonizing requirements with Multifamily High-Rise Program**
				Issue: EPA has recently launched its ENERGY STAR Multifamily High Rise Program. The eligibility requirements of the ENERGY STAR for New Homes Program need to be harmonized with the eligibility requirements of that new program.
				Resolution: The eligibility requirements on page one of the National Program Requirements will be revised as follows: "To earn the ENERGY STAR under the Version 3 Guidelines, homes must be one of the following: • "Single family homes; OR • "Units in any multifamily building with 4 units or fewer; OR • "Units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • "Units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building.[4] When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. "Units in multifamily buildings that are not eligible for the ENERGY STAR through the New Homes program may be eligible to qualify through the Multifamily High Rise Program. The associated footnotes will be as follows: 1. "Any above-grade story with 20% or more occupiable space, including commercial space, shall be counted towards the total number of stories for the purpose of determining eligibility to participate in the program. The definition of an 'above-grade story' is one for which more than half of the gross surface area of the exterior walls is above-grade. All below-grade stories, regardless of type, shall not be included when evaluating eligibility. 2. "Per ASHRAE 62.2-2010, occupiable space is any enclosed space inside the pressure boundary and intended for human activities or continual human occupancy, including, but not limited to, areas used for living, sleeping, dining, and cooking, toilets, closets,

				halls, storage and utility areas, and laundry areas. 3. "Central systems for domestic hot water are allowed if solar energy provides at least 50% of the domestic hot water needs for the residential units. 4. "Units in multifamily buildings with 4 or 5 stories above-grade, including mixed–use buildings, that have their own heating, cooling, and hot water systems, separate from other units, *but where dwelling units occupy less than 80%* of the residential (i.e., excluding commercial / retail space for mixed-use buildings) occupiable square footage of the building may qualify for the ENERGY STAR through either the New Homes program or the Multifamily High Rise program if permitted prior to July 1, 2012. Units in buildings of this type that are permitted after this date shall only be eligible to earn the ENERGY STAR through the Multifamily High Rise (MFHR) program."
00002	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Program eligibility– Access to thermostats in multifamily units**
				Issue: One eligibility requirement for units in multifamily buildings with 4 or 5 stories above-grade is that they must have their own heating, cooling, and hot water systems, separate from other units. Partners have asked whether HVAC thermostats for these units and for multifamily units in general must be accessible to occupants, or if they can be accessible only to the property owner.
				Response: The program does not impose any requirements related to HVAC thermostat access. However, if a continuously-operating ventilation or exhaust fan is present, note that ASHRAE 62.2-2010 and Item 6.4 of the HVAC System Quality Installation Rater Checklist do require that override controls be readily accessible to the occupant.
00003	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Program eligibility – Qualifying existing homes**
				Issue: Partners have asked if existing homes can earn the ENERGY STAR through renovations.
				Response: Existing homes can earn the ENERGY STAR, but they must fulfill all requirements; no requirements are waived.
00193	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.

				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units in multifamily buildings that are not eligible to earn the ENERGY STAR through the New Homes Program may be eligible through the Multifamily High Rise Program." A footnote will be added to define the term "dwelling unit" that reads: "A dwelling unit, as defined by the 2009 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00189	**06/27/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Comment**	**ENERGY STAR certification of homes undergoing a 'gut rehabilitation'**
				Issue: Policy Record ID 00282 contains the most recent resolution of this issue. This issue (ID 00189) is only being retained to maintain a complete Policy Record. Partners have asked if existing homes are permitted to be ENERGY STAR certified and if so, whether there are any exemptions or alternatives to the guidelines that apply to these homes.
				Resolution: Policy Record ID 00282 contains the most recent resolution of this issue. This issue (ID 00189) is only being retained to maintain a complete Policy Record. Historically, EPA has allowed existing homes to earn the ENERGY STAR when all program requirements are met. EPA does recognize that some of the current program requirements present unique challenges for homes undergoing a 'gut rehabilitation'. Therefore, EPA is currently assessing whether there are alternate compliance options that would meet the intent of the current requirements and allow these homes to be ENERGY STAR certified. Note that the goal is not to develop a separate label, but rather to allow these homes to more easily demonstrate that they meet the same intent as new homes that have earned the label.

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00299	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Refinement**	**Qualifying Homes Section – Regional program requirements**
				Issue: The Qualifying Homes Section states that: "Homes may earn the ENERGY STAR using the following ENERGY STAR Prescriptive Path or Performance Path in all states except those for which regional program requirements have been developed. See EPA's Web site for the latest list." Because the states with regional program requirements are not explicitly stated, partners may unknowingly use the National Program Requirements when regional program requirements exist for their state.
				Resolution: To ensure partners do not unknowingly use the National Program Requirements when regional program requirements exist for their state, the last paragraph in the Qualifying Homes Section will be revised as follows: "Homes may earn the ENERGY STAR using the following ENERGY STAR Prescriptive Path or Performance Path in all locations except CA, FL, GU, HI, MA, PR, and the Pacific Northwest, for which regional program requirements have been developed. Note that compliance with these guidelines is not intended to imply compliance with all local code requirements that may be applicable to the home to be built."
00300	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 3 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home. To clarify this intent, the following sentence will be added to the end of Footnote 9: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00004	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Clarification**	**Prescriptive Path – Determining gross basement wall area**
				Issue: Partners have expressed difficulty determining the percentage of gross basement wall area that is below grade when walls are not in contact with either the ground or outdoor ambient air. This occurs, for example, when a wall separates the basement spaces of adjacent townhome units.

				Response: EPA intended to exclude walls that are not in contact with either the ground or outdoor ambient air because of the difficulty of determining the area of the above-grade and below-grade portions of those walls. The beginning of Footnote 3 will be revised to read as follows: "To determine whether at least half of the basement wall area is below grade, use the gross surface area of the walls that are in contact with either the ground or ambient outdoor air, measured from the basement floor to the bottom of the basement ceiling framing (e.g., the bottom of the joists for the floor above)."
00301	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Clarification**	**Prescriptive Path - Below-grade wall area for a home with multiple basement spaces**
				Issue: Partners have asked how to determine whether at least half of the basement wall area is below grade for a home with multiple basement spaces.
				Resolution: For a home that has multiple basement spaces, the gross surface area of the walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.
00005	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Change**	**Prescriptive Path – Basement exclusion from Size Adjustment Factor**
				Issue: Partners have asked EPA to allow bedrooms in basements to be included when determining the Benchmark Home Size. In the rare instances where the majority of bedrooms in a home are located in the basement, excluding these bedrooms can result in the application of a significant Size Adjustment Factor, resulting in a meaningfully more stringent ENERGY STAR HERS Index Target.
				Response: To eliminate this hardship for these homes, EPA will now allow all bedrooms in the home to be counted when determining the Benchmark Home Size, regardless of location. This policy change will result in the same or less stringent target for all Partners. Note that no change is being made to EPA's policy of excluding floor area in basements with at least half of the gross surface area of the exterior walls below grade. That is to say, floor area in basements with at least half of the gross surface area of the basement's exterior walls below grade shall not be counted when determining a home's Benchmark Home Size, Size Adjustment Factor, and eligibility to use the Prescriptive Path. The National Program Requirements will be revised as follows: "First, assess the eligibility to follow the Prescriptive Path by comparing the conditioned floor area (CFA) of the home to be built to the CFA of the Benchmark Home as specified in Exhibit 3. For the purposes of this step, calculate the number of bedrooms and the CFA of the home to

				be built using RESNET standards with the following exception: floor area in basements with at least half of the gross surface area of the basement's exterior walls below grade shall not be counted. If the CFA of the home to be built exceeds the CFA of the Benchmark Home, then the Performance Path shall be used. "To determine whether at least half of the basement wall area is below grade, use the gross surface area of the walls that are in contact with either the ground or ambient outdoor air, measured from the basement floor to the bottom of the basement ceiling framing (e.g., the bottom of the joists for the floor above). Note that this change is only for the purpose of determining a home's Benchmark Home Size, Size Adjustment Factor, and eligibility to use the Prescriptive Path. The full conditioned floor area, per RESNET's standards, should be used when rating the home (e.g., determining compliance with duct leakage requirements). "If a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used."
00006	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Prescriptive Path – Lack of availability of right-sized equipment with required efficiency**
				Issue: Partners have asked what to do when there are no HVAC equipment models available that meet both the right-sizing and efficiency requirements of the Prescriptive Path.
				Resolution: All homes qualified under the Prescriptive Path must use equipment that meets both the prescriptive efficiency levels defined in the ENERGY STAR Reference Design and the right-sizing requirements of the HVAC System Quality Installation Contractor Checklist. If both requirements could not be met, then the home would need to pursue qualification using the Performance Path instead, where lower equipment efficiency is permitted. EPA may consider developing an additional prescriptive path option in the future to accommodate small homes, which benefit less from high-efficiency HVAC systems.
00007	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Refinement**	**Prescriptive Path – Errata**
				Issue: EPA has identified a minor typographical error in Step 1 of the Prescriptive Path in the National Program Requirements: "First, assess the eligibility to follow the Prescriptive Path by comparing the conditioned floor area (CFA) of the home to [be] built to the CFA of the Benchmark Home as specified in Exhibit 3."
				Resolution: Step 1 of the Prescriptive Path will be revised as follows: "First, assess the eligibility to follow the Prescriptive Path by comparing the conditioned floor area (CFA) of the home to be built to the CFA of the Benchmark Home as specified in Exhibit 3."
00302	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being

				certified using the Prescriptive Path. The infiltration rate must also be verified for multifamily dwelling units certified using the Performance Path, if the infiltration rate is designed to be below that of the RESNET HERS Reference Home. Note that the RESNET HERS Reference Home infiltration rate is often significantly higher than the rate specified in the ENERGY STAR Reference Design. Therefore, if the RESNET HERS Reference Home infiltration rate is used in lieu of testing, other energy efficiency features will likely be required to compensate. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00303	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Refinement**	**Performance Path – Using software to determine the ENERGY STAR HERS Index Target**
				Issue: Partners have noted that all RESNET-accredited rating software programs used in the ENERGY STAR Certified Homes program are now capable of automatically configuring the ENERGY STAR Reference Design, calculating its associated HERS Index value, and then applying the Size Adjustment Factor to determine the ENERGY STAR HERS Index Target. As a result, Partners have questioned whether this process is still permitted to be completed manually.
				Resolution: To clarify that the process of determining the ENERGY STAR HERS Index Target must be completed using a RESNET-accredited rating software program, and is no longer permitted to be completed manually, the phrase “Use a RESNET-accredited Home Energy Rating software program…” will be added to the beginning of Step 1 of the Performance Path. Additionally, the second paragraph of Step 1 of the Performance Path, which states that Raters are permitted to calculate the ENERGY STAR HERS Index Target manually until software becomes available to do this automatically, will be removed.
00009	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Performance Path – Modeling uncommon technologies**
				Issue: Partners have asked how to model less common technologies when calculating a home’s HERS Index (e.g., wood fired boilers, drain water heat recovery, evaporative coolers).
				Response: For partners that wish to use innovative technologies to improve the HERS index (e.g., to meet the ENERGY STAR HERS Index Target), EPA recommends that they submit an Innovative Design Request (IDR) to the RESNET Technical Subcommittee. In contrast, for partners that wish to use an innovative technology for a purpose other than to improve the HERS index (e.g., an alternate approach to meeting a detail on one of the inspection checklists), the partner shall first consult their Rater. In the event that a Rater is not able to determine whether the approach is consistent with the intent then the Rater shall consult their Provider. If the Provider also cannot make this determination, then the Rater or Provider shall report the issue to EPA prior to project completion at:

				energystarhomes@energystar.gov.
00104	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Performance Path - Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00304	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Refinement**	**Step 2 of Performance Path - Reference to Thermal Enclosure System Rater Checklist**
				Issue: Partners have noted that Step 2 of the Performance Path specifies that the Mandatory Requirements for All Qualified Homes in Exhibit 2 are required, but then also specifies that two specific Items in the Thermal Enclosure System Rater Checklist (TES) are also required. This reference to two specific Items in the TES is redundant and may create confusion.
				Resolution: To improve clarity, the reference to Items 1.2 and 2.1 of the TES in Step 2 of the Performance Path will be removed and the first paragraph of Step 2 will be revised as follows: "Using the same RESNET-accredited Home Energy Rating software program, configure the preferred set of energy measures for the rated home and verify that the resulting HERS Index meets or exceeds the ENERGY STAR HERS Index Target, as determined in Step 1. Note that, regardless of the measures selected, Mandatory Requirements for All Qualified Homes in Exhibit 2 are also required and impose certain constraints on the energy measures selected

				(e.g., insulation levels, insulation installation quality, window performance, duct leakage)."
00010	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Performance Path – Requirement to use compact fluorescent lights**
				Issue: Partners have asked if there is a minimum requirement for installing compact fluorescent lights (CFLs) to qualify a home under the Performance Path of ENERGY STAR Version 2.5 and Version 3.
				Resolution: When using the Performance Path to qualify a home under Version 2.5 or Version 3, there is no minimum requirement for CFL installation. However, the home must meet the ENERGY STAR HERS Index Target, which is calculated using a reference design home with 80% efficient lighting as described in the Expanded ENERGY STAR Reference Design Definition. Therefore, if the percentage of CFLs in the home is lower than the percentage of CFLs in the Reference Design Definition, the home will likely need other efficiency improvements to achieve the HERS Index Target required for qualification.
00011	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Comment**	**Performance Path – Determining dishwasher efficiencies**
				Issue: Partners have asked how to find the Energy Factor (EF) of a dishwasher in order to model it under the Performance Path.
				Resolution: If an ENERGY STAR qualified dishwasher is installed and the model number is known, then the EF of the dishwasher can be found in the Qualified Product List on the ENERGY STAR qualified products website at the following link: http://www.energystar.gov/index.cfm?fuseaction=dishwash.search_dishwashers. If the EF cannot be determined from the Qualified Products List, the Rater should follow the guidance on minimum rated features provided in the RESNET 2006 Mortgage Industry National Home Energy Rating Standard, available at the following link: http://www.resnet.us/standards.
00097	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Partnership, Training, and Credentialing Requirements**
				Issue: Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.
				Resolution: A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the "ENERGY STAR Performance Path" section and read as follows: "Partnership, Training, and Credentialing Requirements Builders, Raters, and HVAC contractors must meet the following requirements prior to

				qualifying homes under these guidelines: • Builders are required to be ENERGY STAR partners and complete the online Version 3 Builder Orientation. Partnership Agreements and Version 3 Builder Orientation can be found at www.energystar.gov/homesPA. • HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this process and links to H-QUITOs can be found at www.energystar.gov/newhomesHVAC. Raters and Field Inspectors are required to complete Version 3 Training which can be found at www.resnet.us/energystar."
00194	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Refinement**	**Partnership, Training, and Credentialing – Rater and Field Inspector training**
				Issue: EPA has identified that the website provided for Raters and Field Inspectors' Version 3 Training requirements is out of date.
				Resolution: Raters and Field Inspectors can find Version 3 Training requirements at www.energystar.gov/newhomestraining. This website will be provided in place of the out of date website.
00098	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Comment**	**Prescriptive & Performance Path - Dual-fuel air-source heat pump efficiency requirements**
				Issue: Partners have asked what minimum efficiency requirements must be met when installing a dual-fuel air-source heat pump.
				Resolution: If a home is earning the ENERGY STAR using the Prescriptive Path and a dual-fuel air-source heat pump heating system is being installed in the home, the heat pump must meet the minimum efficiency requirements specified in Exhibit 1. Additionally, the dual-fuel backup component must be ENERGY STAR qualified. If the home is earning the ENERGY STAR using the Performance Path, there is no minimum efficiency level that the HVAC equipment must meet. However, if an HVAC system is installed with an efficiency level lower than that specified by Exhibit 1, then other efficiency upgrades may be needed in order to achieve the ENERGY STAR HERS Index Target that must be met for the home to earn the ENERGY STAR.
00099	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Prescriptive Path – Required efficiency of gas furnaces**
				Issue: The minimum efficiency requirements for ENERGY STAR qualified gas furnaces manufactured after 02/01/2012 will increase from 90 AFUE to 95 AFUE for the U.S. North region, defined as states with population-weighted Heating Degree Days ≥ 5000. The ENERGY STAR Product Specification for Furnaces, Version 3.0, specifies which states are included in the U.S. North region.

				The ENERGY STAR Reference Design defined in Exhibit 1 currently requires an ENERGY STAR qualified 90 AFUE furnace in Climate Zones 4 through 8. Partners have asked how this will be modified to account for the new ENERGY STAR product specification for furnaces.
				Resolution: The ENERGY STAR for Homes guidelines will not be modified at this time to align with the more stringent efficiency level required in the new ENERGY STAR product specification for furnaces. The minimum efficiency level specified for gas furnaces in Climate Zones 4 through 8 under the Prescriptive Path and Exhibit 2 of the ENERGY STAR HERS Index Target Procedure will remain at 90 AFUE. The minimum requirement for gas furnaces in Climate Zones 4 through 8 in Exhibit 1 of the National Program Requirements will be revised by removing the phrase "ENERGY STAR qualified".
00100	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Change**	**Prescriptive Path - Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: To address partners' difficulties meeting the total duct leakage limit, the total duct leakage limit will be revised as follows: "Total duct leakage shall be ≤ 8 CFM25 per 100 sq. ft. of conditioned area." Because the total duct leakage threshold will not be changed for homes with less than 1,200 sq. ft. of conditioned floor area, there will no longer be a different threshold for those homes. Footnote 24 will be shortened to only include guidance related to duct leakage testing protocols: "Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol only after all components of the system have been installed (e.g., air handler and register grilles). Leakage limits shall be assessed on a per-system, rather than per-home, basis." Remaining guidance related to testing duct leakage to the outside has been will be consolidated in Footnote 25, which will read as follows: "For homes that have ≤ 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area. Testing of duct leakage to the outside can be waived if all ducts & air handling equipment are located within the home's air and thermal barriers AND envelope leakage has been tested to be less than or equal to half of the Prescriptive Path infiltration limit for the Climate Zone where the home is to be built. Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is ≤ 4

				CFM25 per 100 sq. ft. of conditioned floor area, or ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area for homes that have less than 1,200 sq. ft. of conditioned floor area.”
00101	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Comment**	**Prescriptive Path – Minimum water heater efficiency requirements**
				Issue: Partners have asked if, when a solar water heater is used as the primary water heating system and an electric or gas system is used as a backup system under the Prescriptive Path, both the primary and backup systems must meet the required minimum efficiency levels.
				Resolution: When qualifying a home under the Prescriptive Path, all water heating systems, including backup systems, must meet the minimum efficiency requirements.
00102	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Refinement**	**Prescriptive Path – ENERGY STAR qualified lighting**
				Issue: The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.
				Resolution: To align terminology across programs, and to encourage partners to use ENERGY STAR qualified light fixtures in addition to qualified light bulbs, the Lighting & Appliances section will be revised to read in part: “ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations.”
00195	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Comment**	**Exhibit 1 – RESNET-defined Qualifying Light Fixture Locations**
				Issue: Partners have asked where to find RESNET’s definition of Qualifying Light Fixture Locations.
				Resolution: The glossary of terms in Appendix B of the Mortgage Industry National Home Energy Rating Standards defines a Qualifying Light Fixture Location as follows: “For the purposes of rating, those light fixtures located in kitchens, dining rooms, living rooms, family rooms/dens, bathrooms, hallways, stairways, entrances, bedrooms, garage, utility rooms, home offices, and all outdoor fixtures mounted on a building or pole. This excludes plug-in lamps, closets, unfinished basements, and landscape lighting.” This document is available at the following link: http://www.resnet.us/professional/standards/mortgage
00305	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Refinement**	**Exhibit 2 – Redundant Section header and accompanying text removed**
				Issue: Partners have noted that the Section header and text accompanying Exhibit 2 contain information already found in the Performance Path, Prescriptive Path, and title of Exhibit 2.
				Resolution: The Section header (i.e., “Mandatory Requirements for All ENERY STAR

				Qualified Homes") and accompanying text (i.e., "As noted in the Performance Path and the Prescriptive Path, all ENERGY STAR Qualified New Homes must meet the requirements of the checklists in Exhibit 2") will be removed to eliminate redundancy.
00306	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Change**	**Exhibit 2 & Footnote 29 - 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 29, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00196	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Refinement**	**Exhibit 3 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 3, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 3. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from the Prescriptive Path section.
00307	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Clarification**	**Exhibit 4 – Implementation timeline for national versus regional program requirements**
				Issue: Partners have noted that the implementation schedule in Exhibit 4 is only applicable to the National Program Requirements. Separate regional program requirements and associated implementation schedules have been developed for CA, FL, GU, HI, MA, PR, and the Pacific Northwest. Partners have suggested that this point be clarified in Exhibit 4 to prevent confusion.
				Resolution: To clarify that the implementation schedule in Exhibit 4 is only applicable to the National Program Requirements and not to regional program requirements, the title of Exhibit 4 will be revised as follows: "Exhibit 4: National Program Requirements Implementation Schedule" To further clarify this point, the text accompanying this Exhibit in the Effective Date section will

				be revised as follows: "Use Exhibit 4 to determine the version of the guidelines to be used when earning the ENERGY STAR through the National Program Requirements. Note that regional program requirements and associated implementation schedules have been developed for homes in CA, FL, GU, HI, MA, PR, and the Pacific Northwest."
00012	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Clarification**	**Exhibit 4, Footnote 2 – Definition of permit dates**
				Issue: Partners have asked if Providers can assign deemed permit dates to a home when they cannot determine either the permit date or the date of the contract.
				Response: EPA's policy is that the permit or contract date determines the version of the ENERGY STAR guidelines a home is eligible to be qualified under. EPA believes that one of these two dates should generally be available. However, in cases where the permit date or contract date is not available, Providers have discretion to estimate the permit date based on other construction schedule factors. These assumptions should be both defensible and documented. Footnote 2 will be revised to read as follows: "The Rater may define the 'permit date' as either the date that the permit was issued or the date of the contract on the home. In cases were permit or contract dates are not available, Providers have discretion to estimate permit dates based on other construction schedule factors. These assumptions should be both defensible and documented."
00013	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Clarification**	**Exhibit 4, Footnote 3 – Timeline for low-income projects**
				Issue: Partners have asked EPA to clarify several aspects of the extended Version 2 timeline for low-income projects financed through low-income housing agencies, including the following: • What kind of organization qualifies as a "low-income housing agency"? • What kind of financial support qualifies as "funding"? • How should builders and developers document when funding applications are received by funding agencies? • What is the overall intent of the extended Version 2 timeline for this kind of project?
				Response: By "low-income housing agency," EPA means any entity that provides public funding to nonprofit builders and developers for the construction of housing projects specifically for low-income tenants. By "funding," EPA means public funding such as public grants or Low Income Housing Tax Credit (LIHTC) funds. The funding must be critical to the project financing, such as financing land acquisition, infrastructure, or construction. Funding intended for noncritical activities, such as for providing mortgage financing to homebuyers, does not qualify for the extended timeline. It is the responsibility of the funding applicant (the developer and builder) to keep on file written proof that they applied for public funds for use in constructing a low-income housing project to

				be ENERGY STAR qualified under Version 2. This documentation should identify the funding agency and the date when the funding application was received by the funding agency. This could be a copy of the funding application itself that has been date stamped by the funding agency. If there is no documentation that indicates when the funding application was received by the funding agency, there should at least be documentation that indicates when the funding application was sent to the funding agency by the funding applicant. It is the responsibility of the developer and builder to make this documentation available to the Rater (as well as to EPA upon request) so the Rater can verify whether or not the housing project qualifies for this exemption to the national Version 3 implementation timeline. Also, the builder or developer is responsible for providing to the Rater (as well as EPA upon request) a copy of documentation that shows that the funding was awarded prior to completion of the housing project. The intent of the low-income housing exemption to the national Version 3 implementation timeline is to give nonprofit low-income housing builders and developers additional time to build homes to earn the ENERGY STAR label under Version 2 with the understanding that low-income housing projects typically require some form of public funding in order to be constructed and that the process for obtaining public funding typically adds time to the build-out timeline. EPA decided to provide this exemption based on when the funding application was received as opposed to when the application was approved or when funding was actually received in order to avoid penalizing nonprofit low-income housing developers and builders for delays caused by the funding agency in reviewing and approving funding applications.
00103	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Comment**	**Exhibit 4 – Implementation timeline for projects funded through multiple low-income housing agencies**
				Issue: Partners have asked if, when a low-income project is financed through several low-income housing agencies, each one of the agencies must receive the application for funding prior to April 1st, 2011 for the project to be eligible to earn the ENERGY STAR under Version 2 of the guidelines.
				Resolution: If at least one of the low-income housing agencies received the application for funding by April 1st, 2011, then the project is eligible to earn the ENERGY STAR under the Version 2 guidelines until January 1, 2013.
00308	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Refinement**	**Exhibit 4 – Consolidation of Footnotes**
				Issue: Partners have noted that Exhibit 4 contains its own set of Footnotes separate from the general Footnotes for the rest of the document, which may cause confusion. Furthermore, they have noted that some of these Footnotes are duplicative of the general Footnotes for the rest of the document, others are obsolete, and others are specific to Exhibit 4.
				Resolution: To improve the clarity of the document, Footnote 1 of Exhibit 4 will be moved to the general Footnotes for the rest of the document and renumbered accordingly.

				Footnote 2 of Exhibit 4, which is duplicative of the general Footnote 15, will be deleted and Footnote 15 will be referenced instead. Footnote 3 of Exhibit 4, which allowed low-income projects financed through low-income housing agencies to earn the ENERGY STAR under the last iteration of the guidelines until January 1, 2013, is no longer applicable and will be removed. Footnote 4 of Exhibit 4, which allowed advance labeling of homes under Version 2.5 and prohibited homes from being certified under Version 3 until January 1, 2012, is no longer applicable and will be removed. Footnote 5 of Exhibit 4, which allowed labeling of homes under Version 3 prior to January 1, 2012 where a utility or state sponsor was mandating or incentivizing early adoption, is no longer applicable and will be removed.
00014	**07/25/2011**	**National Program Requirements (Version 3, Rev. 03)**	**Refinement**	**Footnote 8 – Slab framing systems**
				Issue: Partners have asked EPA to define the phrase “slab framing system” in Footnote 8.
				Response: Footnote 8 will be revised to read as follows: “Insulation shall be verified by a Rater to achieve Grade I installation as defined in the RESNET Standards, except for ceiling, wall, and floor assemblies with continuous rigid insulation sheathing. For such homes, Grade II installation is acceptable for the cavity insulation only if the rigid insulation sheathing meets or exceeds the following levels: R-3 in Climate Zones 1 to 4; R-5 in Zones 5 to 8.”
00197	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Clarification**	**Footnote 8 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 8, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 8 will be revised as follows: “The term ‘Rater’ refers to the person completing the third-party inspections required for qualification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining.”
00309	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Refinement**	**Footnote 10 – Complete definition of ENERGY STAR Reference Design**
				Issue: Partners have noted that Footnote 10 defines where the complete definition of the ENERGY STAR Reference Design can be found. This information is already provided in Step 1 of the Performance Path. Therefore, this Footnote is redundant.

				Resolution: To avoid redundancy, Footnote 10 will be removed.
00105	**01/15/2012**	**National Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Footnote 10d – Minimum insulation requirements when using a total UA calculation**
				Issue: Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that "while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated."
				Resolution: To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 10d will be revised as follows: "…Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated..."
00198	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Refinement**	**Footnote 14 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 14.
				Resolution: The word "were" in Footnote 14 will be revised to "where".
00199	**09/10/2012**	**National Program Requirements (Version 3, Rev. 05)**	**Clarification**	**Footnote 22 – Allowance to use integrated/combined hot water products**
				Issue: Partners have asked if a single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in an ENERGY STAR Certified Home.
				Resolution: A single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating and domestic hot water shall be used. In contrast, a tankless coil water heater, where domestic water flows through a coil installed in the space heating system, is not permitted, due to the low efficiency of this system type. To clarify the allowable integrated domestic hot water and space heating systems, Footnote 22 will be revised as follows: "Domestic hot water systems that are integrated with the space-heating system are permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating and domestic hot water shall be used. A 'tankless coil water heater', where domestic water flows through a coil installed in the

				space-heating system, is not permitted."
00310	**06/01/2013**	**National Program Requirements (Version 3, Rev. 06)**	**Clarification**	**Footnote 24 - Applicability of thermostats with 'Adaptive Recovery' technology**
				Issue: Partners have asked if Footnote 24, which states: "For homes with heat pumps, the thermostat shall have 'Adaptive Recovery' technology to prevent the excessive use of electric backup heating," is applicable to both air-source and ground-source heat pumps.
				Resolution: The requirement for thermostats with 'Adaptive Recovery' technology applies to any heat pump with an electric resistance heating element used to supplement the capacity of the heat pump, regardless of whether the heat pump is air-source or ground-source. Note that such a thermostat is not required for a home with a heat pump that only includes an electric resistance heating element used during compressor failure (i.e., emergency heat). To clarify when this requirement applies, Footnote 24 will be revised as follows: "For homes with heat pumps that contain an electric resistance heating element used to supplement the capacity of the heat pump, the thermostat shall have 'Adaptive Recovery' technology to prevent excessive use of the heating element."
00438	**03/26/2015**	**National Program Requirements (Version 3.1, Rev. 03)**	**Change**	**Extended Enforcement Timeline for Calvert and St. Mary's County, MD**
				Issue: EPA's general intent in defining the implementation timeline for Version 3.1 is to enforce it beginning with homes permitted one year after state-level implementation of the 2012 IECC, or equivalent, code. While this general intent should accommodate most states, a unique situation has arisen in Maryland. Maryland adopted the 2012 IECC statewide and began enforcing it in January 2013. However, two counties – Calvert and St. Mary's– adopted county-level regulations that maintained use of the 2009 IECC, despite the statewide adoption of the 2012 IECC. This conflict in state vs. local code adoption will be resolved on July 1, 2015, when the entire state (including these two counties) will adopt the 2015 IECC. In the interim period between 04/01/15 and 07/01/15, EPA's current policy would require that homes in these two counties certify homes under v3.1 relative to the 2009 IECC.
				Resolution: The v3.1 implementation timeline for Calvert and St. Mary's counties in Maryland will be adjusted to accommodate the temporary and unique enforcement of the 2009 IECC, in lieu of the statewide adoption of the 2012 IECC. Specifically, the v3.1 implementation timeline for these two counties will be extended by three months, from 04/01/15 to 07/01/15. In Exhibit 4, the row for DC, IL, MD, RI will be modified to read "On or after 04/01/2015, except for Calvert County and St. Mary's County in MD, for which the applicable permit date is on or after 07/01/2015."
00311	**06/01/2013**	**Inspection Checklists (Version**	**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

		3, Rev. 06)		first page of each of the four inspection checklists.
				Resolution: A field will be added to the top of the first page of each of the four checklists to record the home's zip code, for Raters to use if they so desire.
00312	**06/01/2013**	**Inspection Checklists (Version 3, Rev. 06)**	**Comment**	**Cover Page – Using HERS software programs to verify compliance with Checklist Items**
				Issue: The cover page of the inspection checklists indicates that one requirement for certification is that a home must meet the requirements of the four inspection checklists. Partners have asked if HERS software programs can be used by Raters to ensure compliance with Checklist Items.
				Resolution: HERS software programs may assess compliance with limited Checklist Items, such as the selection of minimum-allowed insulation levels, but none are capable of determining compliance with most of the Checklist Items (e.g., mandatory requirements that require visual inspection). It is the responsibility of the Rater, and not the software, to ensure that each Checklist Item has been verified. The Rater should not presume that a HERS software program has assessed compliance with any Checklist Item unless they receive explicit confirmation from the software provider.
00313	**06/01/2013**	**Inspection Checklists (Version 3, Rev. 06)**	**Change**	**Cover Page & Footnote 1 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from the cover page of the Inspection Checklists as will Footnote 1, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00015	**07/25/2011**	**Inspection Checklists (Version 3, Rev. 03)**	**Clarification**	**Verification by Rating Field Inspectors**
				Issue: Partners have asked if Rating Field Inspectors are permitted to verify items on the Inspection Checklists and, if so, whether there are any restrictions on the items that they can verify.
				Resolution: Rating Field Inspectors are allowed to verify any item on the ENERGY STAR Inspection Checklists that Raters are allowed to verify. Through RESNET, Home Energy Raters and Rating Field Inspectors receive equivalent training with regards to field inspections.

				Therefore, they are both qualified to verify items on the Inspection Checklists. Footnote 2 of the Inspection Checklist cover page will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. This party may be a certified Home Energy Rater, a certified Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET."
00190	**06/27/2012**	**Inspection Checklists (Version 3, Rev. 05)**	**Clarification**	**Cover Page - Sampling protocol**
				Issue: Partners have asked for clarification on three issues related to sampling. First, partners have asked if Raters are required to work under an accredited Sampling Provider in order to conduct sampling. EPA's guidance on the use of sampling on the first page of the Inspection Checklists does not explicitly address this issue. Second, partners in California have noted that the Residential Appendix to the California HERS Standards 2.6.2, "HERS Procedures – Group Sample Field Verification and Diagnostic Testing," defines the sampling protocol recognized by the On-Site Inspection Procedures for California HERS Ratings. The ENERGY STAR Version 3 Program Requirements for the State of California stipulates that this standard must be followed. Therefore, for homes in CA there is an inadvertent conflict between the requirement to use the On-Site Inspection Procedures for California HERS Ratings and the requirement to use a RESNET-approved sampling protocol. Third, partners have asked if a Rater can use a sampling protocol to verify items on the Water Management System Builder Checklist. Currently, EPA only allows sampling for the Thermal Enclosure System Rater Checklist and the HVAC System Quality Installation Rater Checklist. Partners have noted that Raters who complete parts of the Water Management System Builder Checklist would still be subject to standards for performing sampling and to oversight through Provider QA. Partners believe that these are adequate assurances that Rater-verified items can be sampled with a high level of confidence in the integrity of the rating.
				Resolution: First, EPA will clarify that Raters are in fact required to work under an accredited Sampling Provider in order to conduct sampling. Second, where Raters are required to operate under RESNET-accredited Providers, they shall use the RESNET-approved sampling protocol when sampling is used. Where Raters are required to operate under California Energy Commission-recognized Providers, they shall use the CEC-approved sampling protocol when sampling is used. Third, EPA will clarify that Raters working under an accredited Sampling Provider may use the applicable (either RESNET or California Energy Commission) sampling protocol to verify any inspection checklist item that may be designated "Rater Verified". Therefore, Raters are permitted to use sampling to verify items on the Thermal Enclosure System Rater Checklist, the HVAC System Quality Installation Rater Checklist, and the Water Management System Builder Checklist. No parties other than Raters shall use sampling. No items on the HVAC

				System QI Contractor Checklist are permitted to be verified using a sampling protocol because they may only be designated as “Builder Verified” or “Contractor Verified”. Even if a Rater is hired as a subcontractor by a builder or contractor to verify items on the HVAC System Quality Installation Contractor Checklist, the Rater shall not use sampling. The first page of the National Version 3 Inspection Checklists and the Hawaii Version 3 Inspection Checklists will be revised to: “Raters who operate under a Sampling Provider are permitted to use the RESNET-approved sampling protocol for homes located outside California, and the CEC-approved sampling protocol for homes located in CA, to verify any item designated “Rater Verified”. No parties other than Raters are permitted to use sampling. All other items shall be verified for each certified home. “For example, no items on the HVAC System QI Contractor Checklist are permitted to be verified using a sampling protocol because they may only be designated as “Builder Verified” or “Contractor Verified”. As another example, if a Rater verifies 10 items on the Water Management System Builder Checklist and the builder verifies the remaining checklist items, then the applicable (either RESNET or CEC) sampling protocol is permitted to be used only on the 10 Rater-verified items.”
00106	**01/15/2012**	**Inspection Checklists (Version 3, Rev. 04)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home’s HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. The first page of the Inspection Checklists describes how conflicts with code requirements or other guidance are to be handled and will be revised to ensure consistent implementation among partners. The revised guidance will read: “Where requirements of the local codes, manufacturers’ installation instructions, engineering documents, or regional ENERGY STAR programs overlap with the requirements of these guidelines, EPA offers the following guidance: a. “In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;

				b. "In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target (or equivalent target for regional program requirements). Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00016	**07/25/2011**	**Inspection Checklists (Version 3, Rev. 03)**	**Change**	**Sampling verification of Inspection Checklists**
				Issue: Partners have asked EPA to clarify how the HVAC System Quality Installation Contractor Checklist and Water Management System Builder Checklist can be sampled using a RESNET-approved protocol given that RESNET does not provide oversight of builders or HVAC contractors.
				Response: EPA will revise the first page of the Inspection Checklists to require that the HVAC System Quality Installation Contractor Checklist and Water Management System Builder Checklist be completed for each qualified home. EPA will make this change for several reasons. First, there is no effective oversight protocol or infrastructure available to provide sampling of these checklists. RESNET does not provide oversight to the work of builders or HVAC contractors. Second, sampling was conceived as a means to streamline the process by which Raters verify that program requirements have been completed by the builder. That is to say, all homes must meet the program requirements, but verification of compliance is not required for every home if the sampling prerequisites have been met. In contrast, with the HVAC System Quality Installation Contractor Checklist and Water Management System Builder Checklist, the person completing the work is permitted to be the same person verifying the work. For example, the HVAC technician that is installing and commissioning a split system AC unit is permitted to complete the relevant portions of the HVAC System Quality Installation Contractor Checklist. The same logic extends to the builder checklist. Therefore, no additional site visits should be required to complete these two Inspection Checklists. In fact, they can be completed by the person doing the work at the time that the work is done. For these two reasons, EPA will be removing the allowance to use a RESNET-approved sampling protocol to complete the HVAC System Quality Installation Contractor Checklist and Water Management System Builder Checklist. Sampling shall still be permitted for the Thermal

				Enclosure System Rater Checklist and for the HVAC System Quality Installation Rater Checklist. The description of the use of sampling on the first page of the Inspection Checklists will be revised as follows: "The Thermal Enclosure System Rater Checklist and the HVAC System Quality Installation Rater Checklist shall be permitted to be completed for a batch of homes using a RESNET-approved sampling protocol to qualify homes as ENERGY STAR. For example, if the approved sampling protocol requires rating one in seven homes, then these two checklists shall be permitted to be completed for the one required rating. Sampling shall not be used for the HVAC System Quality Installation Contractor Checklist or the Water Management System Builder Checklist. Instead, these two checklists must be completed for each qualified home."
00107	**01/15/2012**	**Inspection Checklists (Version 3, Rev. 04)**	**Comment**	**Definition of Applicable Sampling Protocol**
				Issue: Partners have asked if Chapter 6 of RESNET's Mortgage Industry National Home Energy Rating System Standards still defines the protocols that must be followed to qualify homes through sampling under Version 3.
				Resolution: The sampling protocols described in Chapter 6 of RESNET's Mortgage Industry National Home Energy Rating System Standards must be followed if sampling is used to qualify homes. Note that the use of sampling is not permitted for the HVAC System Quality Installation Contractor Checklist or the Water Management System Builder Checklist.
00108	**01/15/2012**	**Inspection Checklists (Version 3, Rev. 04)**	**Clarification**	**Verifying HVAC contractor credentials**
				Issue: Partners have asked how Raters can verify that an HVAC contractor holds credentials necessary to complete the HVAC System Quality Installation Contractor Checklist, per the requirement on page 1 of the Inspection Checklists.
				Resolution: Raters can verify the credentialed status of an HVAC contractor using the EPA-maintained list of recognized HVAC credentialing organizations at www.energystar.gov/newhomeshvac. A new footnote will be added to the Inspection Checklists that reads: "HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this credentialing process and links to H-QUITOs, which maintain lists of credentialed contractors, can be found at www.energystar.gov/newhomesHVAC."
00200	**09/10/2012**	**Inspection Checklists (Version 3, Rev. 05)**	**Clarification**	**Footnote 2 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality

				Installation Rater Checklist as long as that party fulfills the requirements of Footnote 2, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 2 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining."
00018	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 1 – Applicability of requirements to historic buildings**
				Issue: Partners have asked if historic buildings being renovated must comply with Items 1.1 and 1.2 or if exceptions will be made similar to those in Item 101.4.2 of the 2009 IECC.
				Resolution: Historically, EPA has allowed retrofit projects to earn the ENERGY STAR if all requirements have been met. This policy has not changed. Retrofits must meet all requirements of the guidelines to earn the ENERGY STAR.
00109	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 1.2 – Minimum allowed performance for fenestration**
				Issue: Partners have asked if windows that do not comply with Item 1.2 may be used as long as the total building thermal envelope UA meets the requirements of the 2009 IECC.
				Resolution: This Checklist promotes high-performance thermal enclosure systems in part by limiting the extent to which components can be downgraded when using trade-offs. Because windows typically have high U-factors compared to insulated walls, they are especially prone to compromising the thermal enclosure system. Homes qualified under the Performance Path are required to have a fenestration package that meets or exceeds the component U-factor and SHGC requirements specified in the 2009 IECC Table 402.1.1. Footnote 2 of the Checklist describes several exceptions to these requirements, however. The following exceptions relate to fenestration U-factors: "a) An area-weighted average of fenestration products shall be permitted to satisfy the U-factor requirements; "c) 15 square feet of glazed fenestration per dwelling unit shall be exempt from the U-factor and SHGC requirements, and shall be excluded from area-weighted averages calculated using a) and b) above;" Using this provision, the U-factors of different fenestration products may be averaged to meet 2009 IECC requirements, but fenestration characteristics may not be traded off with other components of the building envelope. Homes qualified under the Prescriptive Path are required to have a fenestration package that meets or exceeds ENERGY STAR requirements, which are more rigorous than the

				requirements of the 2009 IECC.
00019	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 2 – Use of bagged batts to meet quality installed insulation requirements**
				Issue: Partners have asked whether bagged batts (fiberglass batts encapsulated in perforated plastic) are acceptable for insulating basement and crawlspace walls.
				Resolution: From a thermal perspective, this section does not impose any restrictions on using bagged batts. Note though that Item 1.6 of the Water Management System Builder Checklist requires that class 1 vapor retarders not be installed on the interior side of air permeable insulation in exterior below-grade walls. As long as the plastic used is not a class 1 vapor retarder, then the bagged batts are permitted to be used. Reference Footnote 6 of the Water Management System Builder Checklist for further information on class 1 vapor retarders.
00020	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 2 – Options to meet floor insulation requirements in space-constrained cavities**
				Issue: Partners have asked how to meet the floor insulation requirements when space constraints exist, such as ductwork located in the floor cavity. Partners have also asked whether the insulation on the ductwork is permitted to contribute to the required floor insulation.
				Resolution: The R-value of floor insulation can be reduced in cavities where space constraints exist, such as ductwork located in the floor cavity. However, an alternative equivalent U-factor or total UA calculation shall be used to demonstrate compliance with Item 2.1, the insulation installation shall be Grade I (or Grade II for surfaces with insulated sheathing), and an air barrier shall be fully aligned with the insulation at the interior surface of the floor, including supports to ensure permanent contact and blocking at exposed edges. The insulation on the ductwork is permitted to be accounted for when determining compliance with the item.
00021	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 2.1 – Allowance of partially uninsulated assemblies**
				Issue: Partners have asked if some areas of ceiling, wall, or floor assemblies could be left uninsulated as long as the total UA met the 2009 IECC requirements.
				Resolution: The intent of Item 2.1 is to ensure that the overall thermal envelope of the home meets or exceeds the insulation level requirements of the 2009 IECC, as demonstrated by using the prescriptive R-values, an alternative equivalent U-factor calculation, or an alternative equivalent total UA calculation. Therefore, it is possible for homes with partially uninsulated assemblies to meet the intent of this item. However, note that the intent of Section 4 of this checklist is to reduce thermal bridging. It imposes minimum insulation levels for several areas of the thermal envelope and reduced thermal bridging requirements for above-grade walls separating conditioned from unconditioned space. These requirements must also be met for every qualified home. Therefore, while Version 3 does not explicitly require that all areas of the thermal enclosure be insulated to qualify the home, the builder must meet the requirements of Item 2.1 and Section

				4. Furthermore, EPA recommends, but does not require, that all areas of the thermal enclosure be insulated to help minimize thermal bypasses and improve occupant comfort.
00110	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Change**	**Item 2.1 – Insulation level tradeoffs for low infiltration rates**
				Issue: Several partners have noted that they use advanced construction practices and materials that result in infiltration rates significantly below the ENERGY STAR Reference Design values. Because reduced infiltration rates can improve the thermal enclosure system by reducing convective gains and losses, partners have asked whether such techniques are permitted to be used in exchange for insulation levels less than those required by Item 2.1
				Resolution: Item 2.1 is intended to ensure that every qualified home includes a complete thermal enclosure system with improved performance relative to standard practice. Partners now have an additional option to meet the intent of Item 2.1 by achieving meaningful reductions in infiltration relative to the ENERGY STAR Reference Design in exchange for meeting less stringent insulation requirements. Homes that achieve ≤ 50% of the infiltration rate defined for their Climate Zone in Exhibit 1 of the National Program Requirements are permitted to use insulation levels below the 2009 IECC requirements, with some limitations. Item 2.1 will be revised as follows: "Ceiling, wall, floor, and slab insulation levels shall comply with one of the following options: "2.1.1 Meet or exceed 2009 IECC levels **OR;** "2.1.2 Achieve ≤ 133% of the total UA resulting from the U-factors in 2009 IECC Table 402.1.3, excluding fenestration and per guidance in Footnote 3d, **AND** home shall achieve ≤ 50% of the infiltration rate in Exhibit 1 of the National Program Requirements."
00201	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Refinement**	**Item 2.1 – Applicability of Footnotes 3, 4, & 5 to Item 2.1.1 and 2.1.2**
				Issue: Partners have asked if Footnotes 3, 4, and 5 apply to both Item 2.1.1 and 2.1.2. For reference, Footnote 3 provides exceptions and alternatives to meeting the component insulation requirements in the 2009 IECC, while Footnote 4 & 5 define slab insulation requirements.
				Resolution: All three Footnotes apply to Item 2.1.1. In contrast, Item 2.1.2 requires that a total UA calculation be completed and, therefore, specifically references Footnote 3d. Footnote 4 and 5 also apply to this Footnote. To better convey which sections of Footnote 3, 4, and 5 are applicable to Items 2.1.1 and 2.1.2, these Footnotes will be removed from 2.1 and redistributed, as applicable, to Items 2.1.1 and 2.1.2. Specifically, Footnote 3, 4, and 5 will be applied to Item 2.1.1. Only Footnotes 4 and 5 will be applied to Item 2.1.2 because Footnote 3d is already referenced within Item 2.1.2, and the rest of Footnote 3 is not applicable to this Item.

00022	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Change**	**Footnote 3 – Insulation levels for steel-frame assemblies**
				Issue: Partners have advised that the checklist references erroneous guidance contained in the 2009 IECC related to the UA calculation for a steel-frame envelope assembly. Additionally, EPA has identified a minor typographical error in Footnote 3d. The footnote refers to the American Society of Heating, Refrigeration, and Air-Conditioning Engineers as “AHRAE”.
				Resolution: Footnote 3d has been revised to read as follows: “…The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method.”
00023	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Footnote 3 – Methods for demonstrating compliance with insulation requirements**
				Issue: Partners have asked for guidance about the three options available for demonstrating compliance with Item 2.1.
				Resolution: Item 2.1 requires that ceiling, wall, floor, and slab insulation levels meet or exceed the 2009 IECC. There are three different ways to demonstrate compliance with this requirement: 1. Use the prescriptive R-values in Table 402.1.1 of the 2009 IECC. 2. Use an alternative equivalent U-factor calculation. This approach accounts for all components in the assembly, such as drywall thickness, framing fraction, cavity insulation, and sheathing. Strategies such as increasing the framing spacing, adding insulated sheathing, and increasing the drywall thickness can all be used towards meeting the assembly U-factor. An assembly with a U-factor equal or less than specified in Table 402.1.3 of the 2009 IECC complies, even if the cavity insulation is less than the prescriptive values in option 1. 3. Use an alternative equivalent total UA calculation. This approach is similar to option 2, but allows insulation to be traded off among assemblies (e.g., insulation can be moved from the walls to the ceiling or from the ceiling to the floor). This may result in a home where the insulation in one assembly is less than the prescriptive value while another assembly has more than the prescriptive value (e.g., the wall may have less than R-20 cavity insulation, while the ceiling has more than R-38). A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 complies. The insulation levels of all non-fenestration components (i.e., ceilings, walls, floors, and slabs) can be traded off using the UA approach. Note that fenestration products (i.e., windows, skylights, doors) shall not be included in this calculation. Also, note that while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in items 4.1 through 4.3 of the checklist to provide an effective thermal break, regardless of the UA tradeoffs

				calculated. Any of these three options may be used to demonstrate compliance with Item 2.1. Note that there is a simulated performance alternative in the 2009 IECC code, Section 405, that allows one to reduce insulation in exchange for tighter ducts, less infiltration, etc. This is *not* one of the options available to demonstrate compliance with Item 2.1.
00127	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Refinement**	**Footnote 5 – Correction to hyperlink**
				Issue: Partners have noted that the hyperlink and text for the website that provides a list of currently exempt details for slab edge insulation needs to be corrected.
				Resolution: Both the hyperlink and the text for the website that provides a list of currently exempt details for slab edge insulation will be corrected to "www.energystar.gov/slabedge."
00202	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 2.2 – Grade II insulation alternative**
				Issue: Partners have asked whether the alternative provided in Item 2.2, which permits the use of Grade II insulation, is able to be used if continuous insulation products other than insulated sheathing are installed. Item 2.2 currently reads "all ceiling, wall, floor, and slab insulation shall achieve RESNET-defined Grade I installation or, alternatively, Grade II for surfaces with insulated sheathing at levels defined in Item 4.4.1."
				Resolution: The intent of the alternative provided in Item 2.2 is to allow the use of Grade II cavity insulation in assemblies that include any type of continuous, air impermeable, insulation and not only insulated sheathing products. Air impermeable insulation is defined in Chapter 2 of the 2009 IRC as "An insulation having an air permeance equal to or less than 0.02 L/s-m^2 at 75 Pa pressure differential tested according to ASTM E 2178 or E 283." To reflect this clarification, Item 2.2 will be revised as follows: "All ceiling, wall, floor, and slab insulation shall achieve RESNET-defined Grade I installation or, alternatively, Grade II for surfaces that contain a layer of continuous, air impermeable insulation ≥ R-3 in Climate Zones 1 to 4, ≥ R-5 in Climate Zones 5 to 8."
00203	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 2.2, 3.2, & Footnote 8 – Use of compressed batts in floors with open web trusses**
				Issue: Footnote 8 allows, under certain circumstances, for batts that completely fill floor cavities to be used to meet Items 2.2 and 3.2, even when compression occurs due to excess insulation. Partners asked whether this allowance is applicable to floor assemblies with open web trusses. Partners have also asked, if it is generally applicable, then are the openings in the trusses required to be filled with insulation.
				Resolution: Footnote 8 requires that all six sides of the floor cavity must be enclosed. An open web truss is not a considered means of enclosure, therefore an air barrier must be added to enclose the floor cavity for Footnote 8 to be applicable to this scenario.

				Because there are no reduced thermal bridging requirements for floors in Version 3, the openings in the trusses do not need to be filled with insulation for the home to be certified. EPA recommends, but does not require, that that openings be insulated and notes that some insulation types, such as blown-in products, can be more easily installed in these irregularly shaped areas.
00024	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 2.2 & Item 4.4.1 – Request to use reflective insulation products to create a thermal break**
				Issue: Partners have asked for permission to use radiant barrier house wrap as reflective insulation in place of the insulated sheathing and siding options referenced in Item 2.2 and Item 4.4.1.
				Resolution: Radiant barrier house wrap does not satisfy the insulated sheathing and siding options referenced in Item 2.2 and Item 4.4.1. The R-4 value noted in one product's specifications provided by a partner is dependent upon a 0.375 inch airspace, which is not integral to the product. Additionally, these products are typically classified by the ICC Evaluation Service as weather barriers as opposed to insulation products.
00025	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Change**	**Section 3 – Attic kneewalls, skylight shafts, and sloped attics**
				Issue: Partners have noted that attic knee walls and sloped attics, which may require very different strategies for aligning the air barrier and insulation, are grouped together in Item 3.1.3. They suggested that attic knee walls may be more logically grouped with skylight shaft walls in Item 3.1.4. Additionally, partners have continued to ask for clarification about the air barrier requirements for sloped surfaces. The terms "sloped ceilings" and "sloped attics" were introduced with Revision 02 to help clarify the requirements for air barriers, but have not achieved EPA's goal of improving clarity.
				Response: To simplify definitions, Footnote 11 will be revised as follows: "All insulated vertical surfaces are considered walls (e.g., exterior walls, knee walls) and must meet the air barrier requirements for walls. All insulated ceiling surfaces, regardless of slope (e.g., cathedral ceilings, tray ceilings, conditioned attic roof decks, flat ceilings, sloped ceilings), must meet the requirements for ceilings." The terms "sloped ceilings" and "sloped attics" will be removed from the program documents, as they are no longer needed. Item 3.1.3 will be simplified from "Attic knee walls / sloped attics" to "Attic knee walls". The introductory block of Section 3 will be revised as follows: "At each insulated location noted below, a complete air barrier shall be provided that is fully aligned with the insulation as follows: • "At interior or exterior surface of ceilings in Climate Zones 1-3; at interior surface of ceilings in Climate Zones 4-8. Also, include barrier at interior edge of attic eave in all

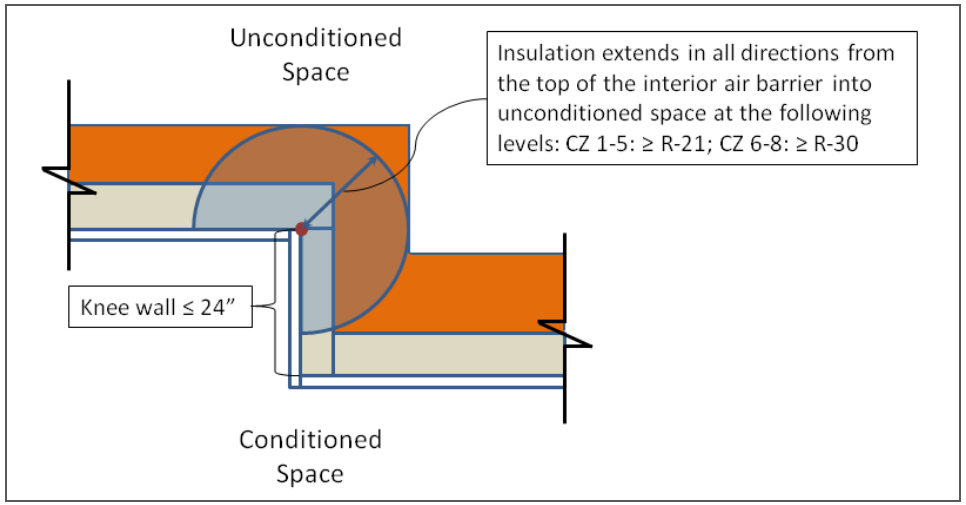
				climate zones using a wind baffle that extends to the full height of the insulation. Include a baffle in every bay or a tabbed baffle in each bay with a soffit vent that will also prevent wind washing of insulation in adjacent bays • "At exterior surface of walls in all climate zones; and also at interior surface of walls for Climate Zones 4-8 • "At interior surface of floors in all climate zones, including supports to ensure permanent contact and blocking at exposed edge."
00026	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 3 – Sealing requirements for drywall used as an air barrier**
				Issue: Partners have asked about the correct installation of drywall and other rigid sheathing products for use as an interior air barrier.
				Resolution: Per Footnote 6, "For purposes of this checklist, an air barrier is defined as any durable solid material that blocks air flow between conditioned space and unconditioned space, including necessary sealing to block excessive air flow at edges and seams and adequate support to resist positive and negative pressures without displacement or damage." Drywall and other kinds of rigid sheathing products must be installed with any "necessary sealing to block excessive air flow at edges and seams" as well as support to resist changes in pressure, which in many cases will be the rigidity of the material itself.
00027	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 3 – Fully-aligned air barrier locations**
				Issue: Partners have asked if an air barrier is required on the bottom of floor joists between a basement and first story if the floor is within the pressure and thermal boundary and the basement is also unconditioned. Partners have also asked if an air barrier is required behind electrical boxes and at rim joists.
				Resolution: Section 3 states that air barriers are required at each insulated location noted, including "at interior surface of floors in all climate zones, including supports to ensure permanent contact and blocking at exposed edges." Therefore, if the floor was not insulated, neither an exterior nor an interior air barrier would be required. If the floor was insulated, the underside of the floor joists would be the exterior surface of that assembly, so an air barrier would not be required at that location. Instead, an air barrier would be required at the interior surface. The checklist does not currently include a requirement for either air sealing or providing an air barrier behind electrical boxes. If the electrical box was adjacent to an insulated wall, then the wall would need to meet the same air barrier requirements as all other insulated walls. Rim joists are exempt from the requirement for an interior air barrier, but are required to have an exterior air barrier per Section 3 and Footnote 7.

00113	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Section 3 – Ceiling air barrier location**
				Issue: Partners have asked where air barriers are required to be installed when insulating an attic roof deck with fiberglass batts.
				Resolution: Section 3 explains that air barriers are required to be fully aligned with insulation "at interior or exterior surface of ceilings in Climate Zones 1-3; at interior surface of ceilings in Climate Zone 4-8." If fiberglass batts are installed to maintain contact with the roof deck, then the roof deck is the exterior air barrier. In Climate Zones 1-3, no interior air barrier is required, but in Climate Zones 4-8, an interior air barrier must be installed.
00204	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Section 3 – Use of baffles in attic bays with a soffit vent**
				Issue: Partners have asked in which attic eave bays a wind baffle must be provided and have also asked in which attic eave bays a tabbed wind baffle must be used.
				Resolution: The first bullet point of Section 3 of this Checklist states: "Include barrier at interior edge of attic eave in all climate zones using a wind baffle that extends to the full height of the insulation. Include a baffle in every bay or a tabbed baffle in each bay with a soffit vent that will also prevent wind washing of insulation in adjacent bays" Each attic bay with a soffit vent must contain a wind baffle that extends from the interior edge of the attic eave to the full height of the insulation. Therefore, if a continuous soffit vent is installed, each bay must have a wind baffle that extends from the interior edge of the attic eave to the full height of the insulation. If soffit vents are installed in some attics bays but not others, then each attic bay with a soffit vent must include a baffle that extends from the interior edge of the attic eave to the full height of the insulation. Furthermore, these baffles must include tabs on the left and right sides to prevent the movement of wind into the insulation in adjacent bays.
00205	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Section 3 – Air barrier requirements for below-grade walls**
				Issue: Partners have asked whether air barriers in below-grade walls are required to be fully aligned with the insulation at the exterior surface of walls in all climate zones and also at the interior surface of walls in Climate Zones 4-8. For example, if an insulated framed wall is offset from the below-grade foundation wall, would an exterior air barrier be required that is fully aligned with the insulation in the framed wall or would the below-grade foundation wall be permitted to be used even though it is offset?
				Resolution: Air barriers that are fully aligned with insulation are critical to the overall performance of the thermal envelope. Allowing air barriers to be misaligned can create convective loops within cavities that can have a significant effect on the insulation's energy performance. For this reason, EPA will retain its current policy and require that air barriers are

				installed that are fully aligned with the insulation at both the interior and exterior surface of walls in Climate Zones 4-8, regardless of whether they are above grade or below grade. To clarify that Section 3 does apply to foundation walls, Footnote 10 will be revised to read: "All insulated vertical surfaces are considered walls (e.g., above and below grade exterior walls, knee walls) and must meet the air barrier requirements for walls . . ."
00314	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Section 3 – Alignment of air barriers & insulation for foundation walls w/ interior framing**
				Issue: Partners in Climate Zones 4 through 8 have asked, if interior wood frame walls are offset from the foundation wall, is batt insulation permitted to be installed such that it extends from the face of the interior air barrier (e.g., drywall) to the face of the foundation wall to comply with the air barrier requirements of Section 3.
				Resolution: Insulating from the face of the interior air barrier to the face of the foundation wall does meet the intent of Section 3 because, in this configuration, the insulation will be fully aligned with both the interior and exterior air barrier.
00315	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Section 3 – Use of dense-packed cellulose**
				Issue: Partners have asked if dense-packed cellulose meets the intent of an air barrier per the requirements of Section 3 of this Checklist.
				Resolution: As stated in Footnote 6, "An air barrier is defined as any durable solid material that blocks air flow between conditioned space and unconditioned space." Even when dense-packed, cellulose is a porous material that does not block air flow and therefore does not qualify as an air barrier.
00128	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Footnote 6 – Use of bagged batts as an air barrier**
				Issue: Partners have requested that a reminder be added to Policy Record ID 00019 to indicate that when bagged batts (fiberglass batts encapsulated in perforated plastic) are used to insulate basement and crawlspace walls, the plastic bags must be sealed at every seam if the plastic is intended to function as an air barrier.
				Resolution: If plastic bags that encapsulate batt insulation are used as air barriers, they must meet all requirements for an air barrier as defined by Footnote 6: "For purposes of this Checklist, an air barrier is defined as any durable solid material that blocks air flow between conditioned space and unconditioned space, including necessary sealing to block excessive air flow at edges and seams and adequate support to resist positive and negative pressures without displacement or damage. EPA recommends, but does not require, rigid air barriers…If flexible air barriers such as house wrap are used, they shall be fully sealed at all seams and edges and supported using fasteners with caps or heads ≥ 1 in. diameter unless otherwise indicated by the manufacturer. Flexible air barriers shall not be made of kraft paper, paper-based products, or other materials that are easily torn. If polyethylene is used, its thickness

				shall be ≥ 6 mil." This includes the requirement that all seams be sealed to provide a continuous air barrier.
00129	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Change**	**Footnote 8 – Compressed batts in floors**
				Issue: Footnote 8 allows floors over unconditioned spaces to be insulated with compressed batts for certain configurations, where each acceptable configuration is defined by the nominal R-value of the batt and the depth of the cavity (e.g., R-19 batts in 2x6 cavities). Partners have asked if additional combinations of insulation levels and cavity depths may be used to insulate floors. In addition, several conflicts between these configurations and related requirements of the Checklist have been identified. 1. Compressed batts are not installed according to manufacturer installation guidelines and do not perform at their nominal R-value. Therefore, the R-value of the compressed batts must be accurately assessed in order to determine compliance with Item 2.1, which establishes minimum insulation levels. 2. Item 2.2 requires that floor insulation achieve RESNET-defined Grade I installation or, alternatively, Grade II for surfaces with insulated sheathing. Appendix A of the RESNET Mortgage Industry National Home Energy Rating System Standards clarifies that "No more than 10% of surface area of insulation compressed or incomplete fill, by up to 30% (70% or more of intended thickness) is acceptable for 'Grade II'." While compressed batts that are otherwise properly installed do achieve full, permanent contact with the enclosure on all six sides, they are compressed over 100% of their surface area and therefore fail to meet Grade II standards. Accurately assessing the R-value of compressed batts and installing them to meet the intent of Item 2.2 requires that defects unrelated to compressing batts to maintain full contact with their enclosure not be permitted. For example, defects caused by compressing insulation around ducts or piping beyond the level of compression in the rest of the cavity should not be permitted.
				Resolution: Most insulation manufacturers can provide their installers or customers with guidance on the R-value of their product at various rates of compression and on the levels of compression that they do not recommend exceeding. Given the many combinations of batt thicknesses and cavity depths that partners may wish to explore, relying upon this manufacturer guidance will offer more flexibility than providing the prescriptive list of options currently in Footnote 8. To resolve the conflicts related to insulation installation grade, floors will be deemed to meet Item 2.2 so long as the compression caused by excess insulation is the sole defect preventing the insulation from achieving the required installation grade. Footnote 8 will be revised as follows:

				"Examples of supports necessary for permanent contact include staves for batt insulation or netting for blown-in insulation. Alternatively, batts that completely fill floor cavities enclosed on all six sides may be used to meet Items 2.2 and 3.2, even when compression occurs due to excess insulation, as long as the R-value of the batts has been appropriately assessed based on manufacturer guidance and the only defect preventing the insulation from achieving the required installation grade is the compression caused by the excess insulation."
00114	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 3.1.1 – Use of Thermoply as an air barrier**
				Issue: Partners have asked if Thermoply can be used as an air barrier behind tubs and showers to meet the intent of Item 3.1.1, which requires fully-aligned air barriers at walls behind showers and tubs.
				Resolution: Rigid air barriers, including Thermoply, may be used to comply with Item 3.1.1, per Footnote 6: "For purposes of this Checklist, an air barrier is defined as any durable solid material that blocks air flow between conditioned space and unconditioned space, including necessary sealing to block excessive air flow at edges and seams and adequate support to resist positive and negative pressures without displacement or damage." Note, however, that Thermoply does not satisfy the intent of Item 4.2 of the Water Management System Builder Checklist, which requires that cement board or equivalent moisture-resistant backing material be installed on all walls behind tub and shower enclosures composed of tile or panel assemblies with caulked joints. Therefore, if Thermoply is used where such enclosures are located adjacent to exterior walls, it must be coupled with a moisture-resistant backing material to meet the intent of both Items.
00206	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 3.1.1 – Compliance for adiabatic walls in multifamily dwellings**
				Issue: Partners have asked if adiabatic walls in multifamily dwellings behind showers and tubs must comply with Item 3.1.1.
				Resolution: Adiabatic walls in multifamily dwellings behind showers and tubs are not required to comply with Item 3.1.1. Item 5.2.7 requires that, in multifamily buildings, the gap between the drywall shaft wall (i.e. common wall) and the structural framing between units be fully sealed at all exterior boundaries. Because of this sealing requirement, an additional air barrier is not required at adiabatic walls in multifamily dwellings behind showers and tubs. Footnote 10 will be revised as follows: "All insulated vertical surfaces are considered walls (e.g., above and below grade exterior walls, knee walls) and must meet the air barrier requirements for walls, with the exception of adiabatic walls in multifamily dwellings."
00112	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version**	**Change**	**Item 3.1.3 - Exemption from exterior air barrier for certain short attic knee walls**
				Issue: Partners have asked if the requirement for an exterior air barrier at attic knee walls applies to attic knee walls that are buried in attic floor insulation. Such attic knee walls may be

		3, Rev. 06)		present at small changes in ceiling height such as tray ceilings and soffits.
				Resolution: Exterior air barriers are generally needed in attic knee walls to support the knee wall cavity insulation and to prevent convection and wind washing. However, in short attic knee walls that are supported by adjacent attic insulation, these needs are minimized. Therefore, an exterior air barrier is not required for attic knee walls that are less than or equal to 24 inches in height if an interior air barrier is provided and insulation extends in all directions from the top of this interior air barrier into unconditioned space at the following levels: CZ 1-5: ≥ R-21; CZ 6-8: ≥ R-30. This policy is illustrated in the exhibit below:  To reflect these changes, a new Footnote will be added to Item 3.1.3 to provide this exemption. It will read as follows: “Exterior air barriers are not required for attic knee walls that are ≤ 24 in. in height if an interior air barrier is provided and insulation extends in all directions from the top of this interior air barrier into unconditioned space at the following levels: CZ 1-5: ≥ R-21; CZ 6-8: ≥ R-30.”
00028	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 3.2.3 – Air barrier requirements for insulated floor above unconditioned crawlspace**
				Issue: Partners have noted that a fully-aligned air barrier should be required for insulated floors above all unconditioned crawlspaces and not just vented crawlspaces, as currently stated.
				Resolution: Section 3 requires a fully-aligned air barrier at each insulated location noted in Item 1.1, 1.2, and 1.3. To clarify that an air barrier is required for insulated floors above all unconditioned crawlspaces, and not just vented crawlspaces, EPA will revise Item 3.2.3 to read

				as follows: “Floor above unconditioned basement or unconditioned crawlspace”.
00207	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 3.3 – Insulation misalignment due to furring strips**
				Issue: In some regions, furring strips (also known as strapping) are attached to the bottom of ceiling joists or rafters and drywall is attached to these furring strips. If batts are then installed, an air space is often created between the insulation and the drywall. Partners have asked if this assembly is in compliance with Item 3.3 if the misalignment occurs.
				Resolution: Assemblies where an air gap is created between the drywall ceiling and an air permeable insulation, such as a fiberglass batt, do not comply with Item 3.3 due to the misalignment that is created. Alternate construction methods that eliminate the misalignment and are therefore in compliance with Item 3.3 include, but are not limited to, the following: 1. Notching the batt around each furring strip in order to install the batt such that it is aligned with the drywall between the furring strips. This process must be done carefully to ensure that the insulation grade is not compromised and that the insulation is aligned with both the drywall and the furring strips. 2. Eliminating the furring strips and attaching the drywall directly to the ceiling joists. This construction practice allows batt insulation to be fully aligned with the drywall. Using blown or sprayed insulation to eliminate the air gaps and align the drywall with the insulation.
00208	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 3.3 and 5.1.2 - Sprinkler systems in multifamily buildings**
				Issue: Partners have asked how to comply with Item 3.3, which requires a fully aligned air barrier between ceilings and insulation, and Item 5.1.2, which requires air sealing of plumbing and piping penetrations, in multifamily buildings where fire protection systems are present. In many jurisdictions, code requires that sprinkler lines in unconditioned space be protected from freezing by “tenting” insulation above the line, which creates areas where the insulation is not aligned with the ceiling air barrier below. In addition, in many cases, either the code or the manufacturer does not permit air sealing around the sprinkler head.
				Resolution: Per the guidance on the cover page of the Inspection Checklists regarding conflicting code requirements, “in cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines, then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines.” Therefore, if code requires that insulation shall be tented above the sprinkler pipes, then this code requirement shall be followed, even though it conflicts with Item 3.3. In addition, if code or the manufacturer requires that sprinkler heads shall not be air-sealed, then this code requirement shall be followed, even though it conflicts with Item 5.1.2. Furthermore, EPA has

				determined that no equivalent option must be followed in order to meet the intent of Item 3.3 and Item 5.1.2. While EPA recommends alternative options, such as moving the sprinklers into conditioned space or conditioning the attic, these alternative options are not required for the home to be certified.
00115	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Section 4 – Friction-fitted batts in attic bays**
				Issue: Partners have asked whether friction-fitted batts can be installed in attic bays or if a continuous layer of insulation must also be installed to reduce thermal bridging.
				Resolution: There is no requirement to reduce thermal bridging in attics except at attic eaves and under attic platforms. Therefore, friction-fitted batts may be installed in attic bays. It is recommended, but not required, that insulation be used to help reduce thermal bridging through ceiling joists or other framing members at the ceiling interface.
00029	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.1 – Uncompressed insulation extended to exterior wall**
				Issue: Partners have asked whether Item 4.1, which requires uncompressed insulation to extend to the inside face of the exterior wall for insulated ceilings with attic space above, is meant to require that uncompressed insulation extend to the inside face of the exterior wall sheathing or the inside face of the wall assembly.
				Resolution: Due to space constraints at the roof deck-exterior wall interface, uncompressed insulation is only required to extend to the inside face of the exterior wall assembly, not the inside face of the exterior wall sheathing.
00116	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Change**	**Item 4.1 – Reduced thermal bridging at attic eaves**
				Issue: Partners have advised EPA that, while many homes permitted beginning January 1, 2012 will be able to fully comply with Item 4.1, plans for certain homes will need to be redesigned in part or in full to achieve compliance and that this redesign process will require additional time. Further complicating the implementation timeline for this Item is the fact that several key structural parameters of Southern Pine lumber are being reassessed by the American Lumber Standards Committee. Changes to these values would necessitate a redesign of many roof systems. Therefore, an extended implementation timeline for this Item would allow for a single redesign process to both provide adequate clearance for insulation and accommodate the latest structural parameters. Furthermore, partners have noted that requiring “Grade I” insulation in place of “uncompressed” insulation will better align with established terminology and more clearly convey the intent of this Item.

				Resolution: Based on partner feedback about the feasibility of implementing Item 4.1, full compliance with this requirement will not be required for homes permitted before January 1, 2013. Homes permitted before that date in Climate Zones 1 through 5 shall instead have at least R-15 Grade I insulation in spaces that provide less than 5.5 inches of clearance. For spaces that provide 5.5 inches or more of clearance, at least R-21 Grade I insulation shall be provided. Homes permitted before that date in Climate Zones 6 through 8 shall instead have at least R-21 Grade I insulation in spaces that provide less than 7.0 inches of clearance. For spaces that provide 7.0 inches or more of clearance, at least R-30 Grade I insulation shall be provided. Item 4.1 will be revised to read: "For insulated ceilings with attic space above (i.e., non-cathedralized), Grade I insulation extends to the inside face of the exterior wall below at these levels: CZ 1 to 5: ≥ R-21; CZ 6 to 8: ≥ R-30." Footnote 11 will be revised to read: "The minimum designated R-values must be achieved regardless of the trade-offs determined using an equivalent U-factor or UA alternative calculation, with the following exception: *"For homes permitted through 12/31/2012:* CZ 1-5: For spaces that provide less than 5.5 in. of clearance, R-15 Grade I insulation is permitted. CZ 6-8: For spaces that provide less than 7.0 in. of clearance, R-21 Grade I insulation is permitted. *"For homes permitted on or after 01/01/2013:* Homes shall achieve Item 4.1 without exception. Note that if the minimum designated values are used, then higher insulation levels may be needed elsewhere to meet Item 2.1. Also, note that these requirements can be met by using any available strategy, such as a raised-heel truss, alternate framing that provides adequate space, and / or high-density insulation."
00117	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 4.1 – Minimum attic insulation levels**
				Issue: Partners have asked if the minimum insulation levels specified in Item 4.1 must be met throughout the attic or only at the inside face of the exterior wall below.
				Resolution: Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall below. It does not define a minimum insulation level that must be met throughout the attic. Only Item 2.1 defines the insulation levels that are applicable to the overall attic. This Item requires that all ceiling, wall, floor, and slab insulation levels meet or exceed 2009 IECC levels. Footnote 3 explains how to meet this intent and addresses how this approach relates to the requirements for reduced thermal bridging in Items 4.1 through 4.3. Footnote 3d will be revised as follows to more clearly explain the constraints on trade-offs imposed by Items 4.1 through

				4.3: "…Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Checklist shall be met regardless of the UA tradeoffs calculated..."
00209	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 4.1 – Explanation of intent behind insulation requirements at attic eaves**
				Issue: Partners have asked for an explanation of the difference between Item 4.1, which requires that "for insulated ceilings with attic space above, Grade 1 insulation extends to the inside face of the exterior wall.." and Section 402.2.1 of the 2009 IECC, which requires that insulation in this location extend "over the wall top plate at the eaves".
				Resolution: To minimize heat transfer through the attic-ceiling interface, full-height uncompressed insulation should extend over the top plate. However, this can be a challenge to achieve due to space constraints. While Section 402.2.1 of the 2009 IECC includes a prescriptive insulation requirement for full-height uncompressed insulation to extend over the top plate, builders are permitted to install less insulation, or no insulation at all, at the top plate when using a U-factor alternative to demonstrate code compliance. In contrast, Item 4.1 of the Checklist defines minimum insulation levels that must be achieved at the inside face of the exterior wall below for all homes, regardless of U-factor alternative calculations. The "inside face of the exterior wall below" was defined as the location where this must be achieved because of the ease with which it can be verified. While Item 4.1 does not explicitly require insulation to extend beyond this location, for many homes this will occur regardless due to the manner in which insulation is commonly installed.
00030	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.2 – Slab edge insulation levels**
				Issue: Partners have asked why there appears to be a discrepancy between Item 4.2 and the Thermal Enclosure System Rater Checklist Guidebook that was updated on 03/23/2011. The checklist states that for slabs on grade in Climate Zone 4 and higher, 100% of the slab edge shall be insulated to greater than or equal to R-5, while the guidebook includes a table on page 92 that implies a required insulation level of R-10.
				Resolution: Item 2.1 of the Checklist requires that ceiling, wall, floor, and slab insulation levels meet or exceed the 2009 IECC. One way to demonstrate compliance with this requirement is to use an alternative equivalent total UA calculation. This approach allows insulation to be traded off among assemblies (e.g., insulation can be moved from the walls to the ceiling, from the slab to the wall). This may result in a home where the insulation in one insulated component is less than the prescriptive value while another insulated component has more than the prescriptive value (e.g., the slab may have less than R-10 insulation, while the ceiling has more than R-38). A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 complies with Item 2.1. While ceiling and slab

				insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in items 4.1 through 4.3 of the checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated. It is for this reason that there are references to both R-5 and R-10 slab insulation levels. The value of R-10 represents the component insulation requirement for slabs in Climate Zones 4 and higher. This value is to be met or exceeded when trade-off calculations are not used. In contrast, the value of R-5 represents the minimum slab insulation level allowed in these climate zones when UA trade-off calculations are used.
00031	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Change**	**Item 4.2 – Challenging slab edge insulation details**
				Issue: Partners have presented EPA with various specific details that have presented challenges regarding the requirement in Climate Zone 4 and higher to insulate 100% of the slab edge when the slab is on grade. EPA already provides two exemptions related to post-tensioned slabs. Partners have recently asked about the following additional details: • For stucco wall systems, can areas be exempted where weep screeds at the bottom of the wall lay flush with the foundation slab? • Can the existing exemption for post-tensioned slabs with integrated garage foundations in multifamily buildings be extended to townhomes? • Can a post-tensioned slab that spans a conditioned space and an adjacent unconditioned hallway in a multi-family structure be exempted? • Can a monolithic slab with a brick ledge be exempted? • Can termite view strips be exempted?
				Resolution: EPA is willing to provide additional exemptions for Item 4.2 for details where a feasible means to insulate the slab edge has not been identified. However, where partners identify such details, they shall provide the detail to EPA to request an exemption prior to the home's qualification. EPA will compile exempted details and work with industry to develop feasible details for use in future revisions to the program. These exemptions will impact the efficiency and comfort of the home; however, EPA is providing them because it has not yet identified a way that insulation can be effectively integrated into the design. With regards to the partner questions above: • EPA believes that walls can be designed such that the weep screed rests upon slab insulation rather than directly on the foundation. For example, the sheathing of the exterior wall can be aligned in the same plane as the foundation insulation, providing a continuous insulated surface. Therefore, EPA will require insulation to extend behind the weep screed to satisfy the intent of Item 4.2. • EPA will extend the exemption regarding post-tensioned slabs. Where a continuous post-tensioned slab extends from conditioned to unconditioned space (e.g., from

				conditioned space to an adjacent unconditioned hallway, to an unconditioned garage, to a porch), insulation is not required to be provided at this boundary to satisfy Item 4.2. This exemption applies to both multifamily and single-family homes. • EPA will not require the horizontal brick ledge of monolithic slabs to be insulated in order to satisfy the intent of Item 4.2. However, the vertical surface on either side of the ledge shall be insulated. Furthermore, floating slabs with brick ledges are not exempted because the insulation layer can be moved to the interior vertical surface of the foundation. • Homes that have uninsulated termite view strips due to code requirements satisfy the intent of Item 4.2. The last sentence of Footnote 5 of the checklist will be revised as follows: "Where specific details cannot meet this requirement, partners shall provide the detail to EPA to request an exemption prior to the home's qualification. EPA will compile exempted details and work with industry to develop feasible details for use in future revisions to the program."
00283	**12/31/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 4.2 - Slab edge insulation alternative for existing homes**
				Issue: Partners certifying existing homes have expressed concern that this requirement would require excavation around, or removal of, the slab, which is not typically within the scope even for a gut rehabilitation. If the slab edge is not already insulated, the perimeter around the slab would need to be excavated or the slab itself removed and replaced to add the required insulation.
				Resolution: Uninsulated sections of slabs create thermal bridges that reduce the efficiency of the thermal enclosure system and can impact the comfort of the home. Insulating 100% of the slab edge eliminates these thermal bridges. To meet this same intent, rigid insulation ≥ R-3 is permitted to be installed on top of an existing slab prior to the installation of the flooring. To reflect this alternative, the following will be added to the end of Footnote 4: "Alternatively, the thermal break is permitted to be created using ≥ R-3 rigid insulation on top of an existing slab (e.g., in a home undergoing a gut rehabilitation). In such cases, up to 10% of the slab surface is permitted to not be insulated (e.g., for sleepers, for sill plates). Insulation installed on top of slab shall be covered by a durable floor surface (e.g., hardwood, tile, carpet)."
00032	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 4.4 – Applicability of reduced thermal bridging requirements to various wall types**
				Issue: Partners have asked EPA to clarify whether Item 4.4, which requires reduced thermal bridging at walls, applies to common walls that separate conditioned spaces, to below-grade exterior walls, to attic knee walls, and to mass walls.
				Resolution: The intent of this item is to improve the resistance of walls to heat transfer by

				eliminating thermal bridging. Reduced thermal bridging ensures more efficient wall construction and improves occupant comfort. Because heat transfer is driven by the temperature differential between adjacent spaces, Item 4.4 was designed for walls separating conditioned space from unconditioned space and limited to above-grade walls where the temperature differential is the greatest. Therefore: • This item applies to all above-grade walls separating conditioned space from unconditioned space, including attic knee walls; • This item does not apply to common walls between attached housing units or to other walls that separate two conditioned spaces; • This item does not apply to below-grade walls, including foundation walls; • This item applies to mass walls, except mass walls that are part of a passive solar design. Compliance options are explained in the revision, below. To reflect these clarifications, this item will be revised as follows: "Reduced thermal bridging at above-grade walls separating conditioned from unconditioned space (rim/band joists exempted) using one of the following options:" A new footnote will be added to this item, as follows: "Mass walls utilized as the thermal mass component of a passive solar design (e.g., a Trombe wall) are exempt from this item. To be eligible for this exemption, the passive solar design must be comprised of the following five components: an aperture or collector, an absorber, thermal mass, a distribution system, and a control system. For more information, see: http://www.energysavers.gov/your_home/designing_remodeling/index.cfm/mytopic=10270. "Mass walls that are not part of a passive solar design (e.g., CMU block or log home enclosure) shall either utilize the strategies outlined in Section 4.4 or the pathway in the assembly with the least thermal resistance shall provide ≥ 50% of the applicable component insulation requirement in the 2009 IECC – Table 402.1.1."
00033	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Change**	**Footnote 8 – Thermal bridging requirement exemption for architectural features**
				Issue: Partners have asked EPA to relocate Footnote 8, which provides an exemption of up to 10% of total exterior wall surface area from the reduced thermal bridging requirements, to Item 4.4 to improve clarity. Additionally, partners have asked whether wall sections with thermal bridging could qualify for this exemption for reasons other than architectural details (e.g., structural steel columns in walls, defective insulation installation).
				Resolution: EPA will relocate Footnote 8 to Item 4.4. EPA will also revise the Footnote to clarify that this exemption applies to any designed detail (i.e., intentional rather than unintentional design decision). The revised footnote will read as follows: "Up to 10% of the total exterior wall surface area is exempted from the reduced thermal bridging requirements to

				accommodate intentional designed details (e.g., architectural details such as thermal fins, wing walls, or masonry fireplaces; structural details, such as steel columns). It shall be apparent to the Rater that the exempted areas are intentional designed details or the exempted area shall be documented in a plan provided by the builder, architect, designer, or engineer. The Rater need not evaluate the necessity of the designed detail to qualify the home.”
00034	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.4 – Reduced thermal bridging using double-wall framing**
				Issue: Partners have asked EPA to determine whether a wall constructed with 2x6 top and sill plates, staggered 2x4 studs with 12” on-center spacing, and dense packed cavity insulation would meet the intent of Item 4.4.
				Resolution: Footnote 15 provides the definition of double-wall framing, which would encompass the technique described above: “Double-wall framing is defined as any framing method that ensures a continuous layer of insulation covering the studs to at least the R-value required in Item 4.4.1 of the checklist, such as offset double-stud walls, aligned double-stud walls with continuous insulation between the adjacent stud faces, or single-stud walls with 2x2 or 2x3 cross-framing. In all cases, insulation shall fill the entire wall cavity from the interior to exterior sheathing except at windows, doors and other penetrations.” Therefore, this technique would meet the intent of Item 4.4, as long as a continuous layer of insulation covered the studs to at least the minimum insulation value listed in Item 4.4.1.
00035	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.4 – Use of 2x4 walls in CZ 5-8**
				Issue: Partners have asked about the reduced thermal bridging requirement for walls outlined in Item 4.4. Specifically, partners have asked for confirmation that 2x4 framing with 16” on-center spacing in Climate Zones 5-8 is an acceptable practice.
				Resolution: To meet the reduced thermal bridging requirements for walls, the builder may use any one of the strategies listed in Items 4.4.1 through 4.4.5, or a combination of these strategies. If Item 4.4.5 is chosen, the builder must comply with all requirements listed in Items 4.4.5a – 4.4.5e. The use of 2x4 framing with 16” on-center spacing complies with Item 4.4.5e in every climate zone. However, if this option is chosen, the builder must also meet all requirements outlined in Items 4.4.5a – 4.4.5d in order to completely fulfill the requirements of Item 4.4. Also, note that Item 2.1 of the checklist requires that ceiling, wall, floor, and slab insulation levels meet or exceed the 2009 IECC. Therefore, additional insulation will likely need to be added to the non-wall assemblies in order to meet this item.
00210	**09/10/2012**	**Thermal Enclosure**	**Comment**	**Item 4.4 – Combined use of reduced thermal bridging techniques in a single home**

		System Rater Checklist (Version 3, Rev. 05)		**Issue:** Partners have asked if the reduced thermal bridging techniques allowed under Item 4.4 are permitted to be mixed and matched within the same home. Specifically, they have asked if continuous rigid insulation can be used for the majority of the above-grade walls, but a different strategy such as advanced framing used in areas where rigid insulation may be difficult to install.
				Resolution: Different strategies to reduce thermal bridging are permitted to be combined in the same home, and even the same wall. For example, continuous rigid insulation may be used for the majority of a wall, while advanced framing may be used for areas where it is difficult to install continuous rigid insulation.
00036	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Refinement**	**Footnote 13 – Insulated siding and sheathing errata**
				Issue: Partners have noted that the footnote describing the use of insulated siding and insulated sheathing as water resistive barriers has inadvertently interchanged the two terms relative to prior revisions.
				Resolution: To improve clarity, the footnote will be revised as follows: “If used, insulated siding shall be attached directly over a water-resistive barrier and sheathing. In addition, it shall provide the required R-value as demonstrated through either testing in accordance with ASTM C 1363 or by attaining the required R-value at its minimum thickness. Insulated sheathing rated for water protection can be used as a water resistant barrier if all seams are taped and sealed. If non-insulated structural sheathing is used at corners, advanced framing details listed under Item 4.3.5 shall be met for those wall sections.”
00095	**10/13/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Footnote 13 – Reduced thermal bridging in mass walls**
				Issue: Partners have raised a question regarding the reduced thermal bridging requirements for mass walls that are not part of a passive solar design. Specifically, partners have asked if the thermal resistance of each material in the mass wall assembly is permitted to contribute to the component insulation level referenced in Footnote 13 of the Checklist (“... shall provide ≥ 50% of the applicable component insulation requirement in the 2009 IECC..”) or if only some subset of insulating materials may be used to meet this requirement.
				Response: The thermal resistance of each material in the mass wall assembly is permitted to contribute towards meeting the intent of this requirement. In order to clarify this intent, the second paragraph of Footnote 13 of the Checklist will be revised to reference the mass wall equivalent U-factors defined in Table 402.1.3 of the 2009 IECC rather than the component insulation requirements defined in Table 402.1.1 of the 2009 IECC. The second paragraph of the footnote will be revised to read as follows: “Mass walls that are not part of a passive solar design (e.g., CMU block or log home enclosure) shall either utilize the strategies outlined in Section 4.4 or the pathway in the assembly with the

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

				resistance value shall be collected by the Rater and any Builder Verified or Rater Verified box under Item 4.4 shall be checked." For example, in CZ 2, the reciprocal of the mass wall equivalent U-factor in the 2009 IECC – Table 402.1.3 is 1 / 0.165 = 6.06. As long as the path through the assembly with the least resistance provides at least 50% of this value (i.e., R-3.0), then the mass wall would meet the intent of the thermal bridging requirements in Item 4.4 of this Checklist. The resistance of the path would be determined using a method consistent with the 2009 ASHRAE Handbook of Fundamentals, such that air layers and all other assembly layers are included.
00131	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Refinement**	**Footnote 15 – Corrected reference to a Checklist Item**
				Issue: Partners have noted that the reference in this Footnote does not align with the terminology used in the Checklist.
				Resolution: To improve clarity, the phrase "Section 4.4.1" will be revised to read "Item 4.4.1".
00316	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 4.4.5 – Improved clarity of reduced thermal bridging requirements**
				Issue: Partners have noted that Item 4.4.5 contains several requirements that may be misinterpreted: • The exemption in Footnote 12, which states "up to 10% of the total exterior wall surface area is exempted from the reduced thermal bridging requirements to accommodate intentional design details, (e.g., architectural details such as thermal fins, wing walls, or masonry fireplaces; structural details, such as steel columns)…", could be interpreted either as applying to each Sub-Item 4.4.5a-4.4.5e or applying to Item 4.4.5 as a whole and therefore allowing a partner to not complete Sub-Items that add up to less than 10% of the surface area. • Item 4.4.5b does not state within the Item the required insulation levels for headers. This information can only be found in Footnote 18. Item 4.4.5c does not state what is meant by 'limited framing' within the Item. This information can only be found in Footnote 19.
				Resolution: The following clarifications will be made to Item 4.4.5 to reduce misinterpretations: • The exemption of up to 10% of the total exterior wall surface area from the reduced thermal bridging requirements in Footnote 12 is only intended to be applied to Items 4.4.1 through 4.4.4. This is because each of the Sub-Items in Item 4.4.5 can either be completed even when intentional design details (e.g., architectural details such as thermal fins, wing walls, or masonry fireplaces; structural details, such as steel columns) are present, or already have exemptions to accommodate such details (i.e., Items 4.4.5b and 4.4.5e). To clarify this intent, the reference to Footnote 12 will be removed from Item 4.4 and

				relocated to Items 4.4.1, 4.4.2, 4.4.3, and 4.4.4. As a result, Footnotes 12 and 13 will be renumbered to maintain sequential numbering. • To improve the frequency with which the required insulation levels are met in Item 4.4.5b, the insulation levels specified in Footnote 18 will be relocated to Item 4.4.5b as follows: "All headers above windows & doors insulated ≥ R-3 for 2x4 framing or equivalent cavity width, and ≥ R-5 for all other assemblies (e.g., with 2x6 framing)" As a result, the first sentence of Footnote 18, which defined the minimum required insulation levels, will be removed. • To improve the frequency with which the intent of "limited framing" is met in Item 4.4.4c, the relevant guidance from Footnote 19 will be relocated to Item 4.4.4c as follows: "Framing limited at all windows & doors to one pair of king studs, plus one pair of jack studs per window opening to support the header and sill" Footnote 19 will be revised to read: "Additional jack studs shall be used only as needed for structural support and cripple studs only as needed to maintain on-center spacing of studs."
00037	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.4.5a – Framing fractions related to advanced framing practices**
				Issue: Partners have asked where to find standard framing fractions for various stud spacing distances, specifically those in Item 4.4.5e.
				Resolution: EPA does not provide default framing fraction values. Raters wishing to use default values should refer to the guidance provided in the RESNET 2006 Mortgage Industry National Home Energy Rating Standard, available at the following link: http://www.resnet.us/standards. Additionally, partners may wish to calculate the fraction for a specific home using its framing plan.
00118	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 4.4.5b – Uninsulated full-depth headers**
				Issue: Item 4.4.5b and Footnote 18 require that all headers above doors and windows be insulated, except where a framing plan provided by the builder, architect, designer, or engineer indicates that full-depth solid headers are the only acceptable option. Partners have asked if uninsulated full-depth headers can be used to meet the intent of Item 4.4.5b even if other header options are viable. Because full-depth headers can bear larger loads, the height of these products may be less than that of headers that are not full-depth, particularly for engineered wood products. As a result, the wall area available for full-depth insulation may be increased, even though the header itself is not insulated.

				Resolution: Uninsulated full-depth headers are permitted to be used to meet the intent of Item 4.4.5b, even if other header options are viable. Footnote 18, which clarifies Item 4.4.5b, will be revised to read as follows: "Header insulation shall be ≥ R-3 for wall assemblies with 2x4 framing, or equivalent cavity width, and ≥ R-5 for all other assemblies (e.g., with 2x6 framing). Compliance options include continuous rigid insulation sheathing, SIP headers, other prefabricated insulated headers, single-member or two-member headers with insulation either in between or on one side, or an equivalent assembly, except where a framing plan provided by the builder, architect, designer, or engineer indicates that full-depth solid headers are to be used. The Rater need not evaluate the structural necessity of the details in the framing plan to qualify the home. Also, the framing plan need only encompass the details in question and not necessarily the entire home. R-value requirement refers to manufacturer's nominal insulation value."
00038	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Change**	**Footnote 17 – Insulated header R-value requirements**
				Issue: EPA has identified an unintended barrier to meeting the insulated header requirements in this checklist. Item 4.4.5b requires that partners insulate headers above windows and doors to at least R-5 in Climate Zones 5 through 8. While many partners in these climate zones are using 2x6 wall assemblies or 2x4 wall assemblies with insulated sheathing, several partners expressed difficulty meeting this requirement because of their use of 2x4 wall assemblies without insulated sheathing. For such wall assemblies, space constraints make it difficult to achieve the required insulation level. EPA defined the requirement for R-5 header insulation in Climate Zones 5 through 8 assuming that builders in these regions would be using 2x6 framing, 2x4 framing with insulated sheathing, or other advanced assemblies in order to meet the 2009 IECC insulation levels required in Item 2.1. While this is true for many partners, some are using 2x4 wall assemblies without insulated sheathing. By using high-density insulation products and increased insulation in other assemblies, they are still able to meet the 2009 IECC insulation requirements using a UA approach. For these 2x4 assemblies, there is typically not enough space to incorporate R-5 insulation at the header.
				Resolution: The beginning of Footnote 17 will be revised to define minimum insulation levels based upon assembly thickness, rather than climate zone, as follows: "Header insulation shall be ≥ R-3 for wall assemblies with 2x4 framing, or equivalent cavity width, and ≥ R-5 for all other assemblies (e.g., with 2x6 framing). Compliance options include continuous rigid insulation sheathing..."
00119	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 4.4.5d – Compressed insulation behind ladder framing**
				Issue: Partners have asked if the intent of Item 4.4.5d ("All interior / exterior wall intersections insulated to the same R-value as the rest of the exterior wall") is satisfied even when ladder framing compresses the insulation at the interior/exterior wall intersection. For example, if "2x"

				framing is used to create the ladder and the “2x” dimension is oriented horizontally, then the insulation will be compressed by 1.5 in. and its effective R-value reduced below that of the rest of the exterior wall insulation.
				Resolution: Installing insulation with the same nominal R-value as the insulation in the rest of the exterior wall meets the requirements of Item 4.4.5d, even if it is compressed behind ladder framing. Note, however, that the overall exterior wall must still meet the insulation installation requirement of Item 2.2. The intent of this requirement is to ensure that insulation is installed in the cavity created by the intersection of an interior wall and an exterior wall. Typically, this intersection is filled entirely with vertical studs or is left completely uninsulated, which creates a significant thermal bridge. Insulation installed with the same nominal R-value as the rest of the exterior wall will generally represent an improvement over typical building practice, even if some compression occurs.
00039	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 4.4.5e – Rater verification of stud spacing for advanced framing**
				Issue: Partners have asked about the proper course of action when a Rater finds a framing element that does not have a clear structural purpose. Partners have also asked what course of action should be taken when the architect insists on a framing plan that does not meet the advanced framing requirements in Item 4.4.5.
				Resolution: In both cases, as per Footnote 20 of the checklist, the Rater should collect a framing plan from the builder, architect, designer, or engineer that encompasses the detail in question. With regards to framing plans that do not meet Item 4.4.5, EPA cannot place Raters in a position where they are asked to overrule the judgment of builders, architects, designers, or engineers on structural matters. For this reason, EPA does not require the Rater to evaluate the structural necessity of the details in the framing plan to qualify the home. Instead the Rater is advised to educate and collaborate with the builder to develop alternative strategies that do meet the intent where possible. Ultimately, the Rater has the ability to withhold the label and may choose to do so in cases where the Rater believes that there is a systematic attempt to circumvent the intent of this item. The Rater can also consult with their Provider and with EPA in such cases. EPA has included advanced framing details as one effective and low-cost means to reduce thermal bridging. However, if this option is not implemented properly on a consistent basis, EPA will need to consider whether to remove this option in future versions of the program guidelines.
00188	**04/20/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Change**	**Item 4.4.5e – Minimum stud spacing for advanced framing**
				Issue: Policy Record ID 00429 contains the most recent resolution of this issue. This issue (ID 00188) is only being retained to maintain a complete Policy Record. Item 4.4.5e requires 24” on-center stud spacing in Climate Zones 5 - 8 for partners using the

				advanced framing strategy to reduce thermal bridging in 2x6 wood frame walls. An exemption from the 24” on-center spacing requirement is provided in Footnote 21 if alternate spacing is serving a structural purpose and a framing plan is provided by the builder, architect, designer, or engineer. Per Footnote 21, the Rater need not evaluate the structural necessity of the details in the framing plan to qualify the home. ENERGY STAR partners have responded to these requirements and allowances in several ways: • Some partners have implemented this requirement and have produced efficient wall assemblies with reduced thermal bridging as was originally intended. • Some partners have circumvented this requirement using the exemption. Partners have suggested that the exemption has been used for a variety of reasons, ranging from the intended (e.g., for structural reasons) to the unintended (e.g., to avoid the cost of redesigning framing plans or due to perceived quality concerns about 24” on-center spacing). • Some partners have circumvented this requirement by using 2x4 studs, which results in the installation of less wall cavity insulation and more thermal bridging than originally intended. • Some partners have made plans to leave the program altogether to avoid this detail. In summary, the current policy is being unevenly enforced. Those that are complying with the requirement are reducing thermal bridging as intended, while those not complying with the requirement are not reducing thermal bridging.
				Resolution: Policy Record ID 00429 contains the most recent resolution of this issue. This resolution (ID 00188) is only being retained to maintain a complete Policy Record. In order to improve the frequency with which Item 4.4.5e reduces thermal bridging, EPA will remove the exemption from 24” on-center spacing and instead replace it with an alternate compliance path that requires at least R-20.0 wall insulation. That is to say, to meet the intent of Item 4.4.5e, partners in Climate Zones 5 - 8 may either use 24” on-center spacing *or* insulate the wall to ≥ R-20.0 or higher. Partners will no longer be exempted from the 24” on-center spacing requirement simply by providing a framing plan by the builder, architect, designer, or engineer. Partners that elect to use 24” on-center spacing to satisfy Item 4.4.5e will reduce thermal bridging by reducing the quantity of studs in the wall. Those who elect to use R-20.0 insulation will instead improve the overall wall assembly using advanced insulation materials (e.g., high-density fiberglass batts, blown-in fiberglass, dense-packed cellulose, foam). To account for these policy changes, Item 4.4.5e will be revised to read: “Minimum stud spacing of 16 in. o.c. for 2x4 framing in all Climate Zones and, in

				Climate Zones 5 through 8, 24 in. o.c. for 2x6 framing[21]” Footnote 21 will be revised to read: “In Climate Zones 5 - 8, a minimum stud spacing of 16 in. o.c. is permitted to be used with 2x6 framing if ≥ R-20.0 wall insulation is installed. Regardless, all vertical framing members shall either be on-center or have an alternative structural purpose (e.g., framing members at the edge of pre-fabricated panels) that is apparent to the Rater or documented in a framing plan that encompasses that member and is provided by the builder, architect, designer, or engineer. The Rater need not evaluate the structural necessity of the framing plan to qualify the home. However, all 2x6 framing with stud spacing of 16 in. o.c. in Climate Zones 5 - 8 shall have ≥ R-20.0 wall insulation installed regardless of any framing plan or alternative equivalent total UA calculation.”
00211	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Change**	**Item 4.4.5e – Minimum stud spacing for advanced framing** **Issue:** Policy Record ID 00429 contains the most recent resolution of this issue. This issue (ID 00211) is only being retained to maintain a complete Policy Record. Item 4.4.5e requires 24” on-center stud spacing in Climate Zones 5 - 8 for partners using the advanced framing strategy to reduce thermal bridging in 2x6 wood frame walls. An exemption from the 24” on-center spacing requirement is provided in Footnote 21 if alternate spacing is serving a structural purpose and a framing plan is provided by the builder, architect, designer, or engineer. Per Footnote 21, the Rater need not evaluate the structural necessity of the details in the framing plan to qualify the home. ENERGY STAR partners have responded to these requirements and allowances in several ways: • Some partners have implemented this requirement and have produced efficient wall assemblies with reduced thermal bridging as was originally intended. • Some partners have circumvented this requirement using the exemption. Partners have suggested that the exemption has been used for a variety of reasons, ranging from the intended (e.g., for structural reasons) to the unintended (e.g., to avoid the cost of redesigning framing plans or due to perceived quality concerns about 24” on-center spacing). • Some partners have circumvented this requirement by using 2x4 studs, which results in the installation of less wall cavity insulation and more thermal bridging than originally intended. • Some partners have made plans to leave the program altogether to avoid this detail. In summary, the current policy is being unevenly enforced. Those that are complying with the requirement are reducing thermal bridging as intended, while those not complying with the requirement are not reducing thermal bridging.

				Resolution: Policy Record ID 00429 contains the most recent resolution of this issue. This issue (ID 00211) is only being retained to maintain a complete Policy Record. In order to improve the frequency with which Item 4.4.5e reduces thermal bridging, EPA will remove the exemption from 24" on-center spacing and instead replace it with an alternate compliance path that requires that the *wall cavity insulation* achieve at least R-20.0. Other assembly components such as drywall, exterior cladding, and insulated sheathing will not be permitted to be used to meet this alternate compliance path. Only the wall cavity insulation itself shall be considered. That is to say, to meet the intent of Item 4.4.5e, partners in Climate Zones 5 - 8 may either use 24" on-center spacing or insulate the wall cavity so as to achieve ≥ R-20.0. Partners will no longer be exempted from the 24" on-center spacing requirement simply by providing a framing plan by the builder, architect, designer, or engineer. Partners that elect to use 24" on-center spacing to satisfy Item 4.4.5e will reduce thermal bridging by reducing the quantity of studs in the wall. Those who elect to achieve ≥ R-20.0 wall cavity insulation will instead improve the overall wall assembly using advanced insulation materials (e.g., high-density fiberglass batts, blown-in fiberglass, dense-packed cellulose, foam). To account for these policy changes, Item 4.4.5e will be revised to read: "Minimum stud spacing of 16 in. o.c. for 2x4 framing in all Climate Zones and, in Climate Zones 5 through 8, 24 in. o.c. for 2x6 framing [21]" Footnote 21 will be revised to read: "In Climate Zones 5 - 8, a minimum stud spacing of 16 in. o.c. is permitted to be used with 2x6 framing if ≥ R-20.0 wall cavity insulation is achieved. Regardless, all vertical framing members shall either be on-center or have an alternative structural purpose (e.g., framing members at the edge of pre-fabricated panels) that is apparent to the Rater or documented in a framing plan that encompasses that member and is provided by the builder, architect, designer, or engineer. The Rater need not evaluate the structural necessity of the framing plan to qualify the home. However, all 2x6 framing with stud spacing of 16 in. o.c. in Climate Zones 5 - 8 shall have ≥ R-20.0 wall cavity insulation installed regardless of any framing plan or alternative equivalent total UA calculation."
00120	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Section 5 – Thickness requirements for foam used for air sealing**
				Issue: Partners have asked if foam used for air sealing any of the penetrations, cracks, and openings listed in Section 5 must meet the minimum thickness requirements established by Footnote 6 for open- and closed-cell foam to be used as air barriers.
				Resolution: Footnote 6 applies to Section 3, Fully-Aligned Air Barriers, not to Section 5, Air Sealing. Foam does not need to meet the minimum thickness requirements of Footnote 6 when

				used to seal Items in Section 5.
00212	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Section 5 – Use of adhesive-backed foam tape as an air sealing material**
				Issue: Partners have asked if adhesive-backed foam tapes may be used as air sealing materials to meet the air sealing requirement of Section 5.
				Resolution: Adhesive-backed foam tapes may be used as air sealing materials to meet the air sealing requirements of Section 5. Note that EPA recommends that partners follow manufacturer guidance in selecting and using air sealing products, particularly with respect to durably adhering to the substrate and maintaining an effective seal over time.
00317	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Section 5 – Use of drywall mud for air sealing not permitted**
				Issue: Partners have asked if the use of drywall mud is an acceptable material for air sealing the locations included in Section 5 (e.g., penetrations, cracks).
				Resolution: Drywall mud is not permitted to be used to meet Section 5 because it can become brittle and crack after drying, which prevents a durable air-tight seal.
00213	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 5.1 – Air sealing of seams between framing members not required**
				Issue: Partners have noted that it is common practice to seal the seams between adjacent wood framing members and have asked if this is required by Item 5.1.
				Resolution: The seams between adjacent wood framing members are not required to be sealed per Item 5.1. Only the locations listed in Item 5.1, which are commonly overlooked penetrations that can cause significant infiltration, are required to be sealed to earn the label. Note that EPA recommends, but does not require, that all other penetrations passing through the primary air barrier be sealed to create a complete thermal enclosure system.
00318	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 5.1.1 – Air sealing where ducts transition from conditioned to unconditioned space**
				Issue: Partners have asked whether the opening around a flex duct where it transitions from conditioned to unconditioned space is permitted to be sealed with blocking or flashing, or if hard ducts must be used at this transition.
				Resolution: The intent of Item 5.1.1 is, in part, to ensure that the opening around a duct is fully sealed where it transitions from conditioned to unconditioned space . Because flex duct is not a rigid material, it is very difficult to durably seal this opening between the duct and solid blocking or flashing that may surround it. Furthermore, even if the opening around a flex duct is sealed during initial installation, the long term durability of the air seal may be compromised due to the movement of the flex duct. For this reason, a flexible duct connector (i.e., a rigid coupling between two sections of flexible duct) must be used at transitions from conditioned to unconditioned space to help ensure a

				durable air seal and meet the intent of this Item.
00214	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 5.1.3 – Air sealing of electrical switch and receptacle box penetrations not required**
				Issue: Partners have asked whether switch and receptacle boxes installed in exterior walls are classified as electrical wiring and if they are required to be sealed to demonstrate compliance with Item 5.1.3.
				Resolution: Electrical switch and receptacle boxes are not considered to be electrical wiring and are therefore not required to be air sealed. Only the locations listed in Item 5.1, which are commonly overlooked penetrations that can cause significant infiltration, are required to be sealed to earn the label. Note that EPA recommends, but does not require, that all other penetrations passing through the primary air barrier, including electrical switch and receptacle boxes, be sealed to create a complete thermal enclosure system.
00040	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 5.2.1 – Foam gasket beneath sill plates on concrete or masonry**
				Issue: Partners have asked EPA to evaluate whether a sill sealer meets the intent of Item 5.2.1, which requires that sill plates adjacent to conditioned space be sealed to the foundation or sub-floor with caulk and that a gasket also be placed beneath the sill plate if it rests atop concrete or masonry. Separately, partners have also asked EPA for permission to use adhesive in place of a foam gasket to meet the intent of this item.
				Resolution: A sill sealer would meet the intent of using a foam gasket underneath sill plates resting atop concrete or masonry. Note that Item 5.2.1 also requires the sill plate to be sealed to the foundation or subfloor with caulk. Adhesive is a bonding agent and does not provide the same air sealing properties as a foam gasket. When adhesive dries, it is prone to cracking, which can lead to many small penetrations through which air can enter the home. For this reason, applying adhesive to seal a sill plate to the foundation or sub-floor does not meet the intent of Item 5.2.1.
00121	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 5.2.1 – Foam gaskets under sill plates atop non-solid foundations**
				Issue: Partners have asked if a foam gasket is required beneath sill plates adjacent to conditioned space if they rest on a foundation that is not solid (e.g. CMU foundation walls).
				Resolution: Item 5.2.1 requires a foam gasket beneath sill plates resting atop concrete or masonry (e.g., CMU walls) and adjacent to conditioned space: “All sill plates adjacent to conditioned space sealed to foundation or sub-floor with caulk. Foam gasket also placed beneath sill plate if resting atop concrete or masonry and adjacent to conditioned space.”
00122	**01/15/2012**	**Thermal Enclosure**	**Comment**	**Item 5.2.1 – Foam gaskets and sill plate caulking**

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

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

				structural masonry or monolithic walls are exempt from this Item." Partners are encouraged to read Building America's "Measure Guideline: Internal Insulation of Masonry Walls" by J.F. Straube, K. Ueno, and C.J. Schumacher of Building Science Corporation for more information about the benefits of a continuous integrated thermal / air barrier.
00285	**12/31/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 5.2.1 - Foam gasket beneath an existing sill plate**
				Issue: Partners certifying existing homes have expressed concern that it is not feasible to remove sill plates to place a gasket beneath, even for a gut rehabilitation.
				Resolution: Sill plates are a commonly overlooked place that is prone to infiltration due to uneven surfaces and adjacent dissimilar materials. A gasket combined with caulk is the preferred approach to minimizing leakage at this interface. To achieve the same intent in existing homes, partners are permitted to instead seal around all sill plates and bottom plates resting atop concrete or masonry and adjacent to conditioned space. This includes sealing the seam where the top exterior edge of the plate meets the sheathing and sealing the seam where the bottom interior edge of the plate meets the concrete or masonry. A Footnote will be added to this Item that reads: "In addition, other existing sill plates resting atop concrete or masonry and adjacent to conditioned space are permitted, in lieu of using a gasket, to be sealed with caulk, foam, or equivalent material at both the interior seam between the sill plate and the subfloor and the seam between the top of the sill plate and the sheathing."
00041	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 5.2.3 – Purpose and methods for sealing top plates**
				Issue: Partners have asked about the intent of Item 5.2.3, which requires "sheetrock sealed to top plate at all attic/wall interfaces using caulk, foam, or equivalent material". Partners have also asked about appropriate methods for meeting this requirement, including suggestions for gasketing materials that can be used between the top plate and drywall.
				Resolution: The interface between the drywall and the top plate is a common point of air leakage in the home's pressure boundary. Furthermore, extreme temperatures are often found in unconditioned attics, exacerbating the efficiency and comfort impacts for the home's occupants when leakage occurs. Per Item 5.2.3, there are two ways to seal drywall to top plates: "either apply the sealant directly between the sheetrock and top plate or to the seam between the two from the attic above." EPA is not permitted to endorse any specific products, but any caulk, foam, or equivalent material that can fully seal the top plate is an acceptable material. Note that construction adhesive is not permitted to be used.
00125	**01/15/2012**	**Thermal Enclosure**	**Clarification**	**Item 5.2.3 – Air sealing at conditioned attic / wall interfaces**

		System Rater Checklist (Version 3, Rev. 04)		**Issue:** Partners have asked if air sealing ceiling drywall to the top plate per Item 5.2.3 is still required when the thermal and pressure boundary of the home is located at the roof deck of the attic rather than at the attic / ceiling interface. Additionally, partners have requested that construction adhesive be permitted to be used to seal drywall to top plates at attic / wall interfaces. This adhesive is typically already stocked on construction sites when drywall is being installed, so meeting Item 5.2.3 through the use of adhesive is more achievable than through the use of caulk, foam, or gaskets.
				Resolution: The specific intent of Item 5.2.3 is explained in Policy Record Item 00041: "The interface between the drywall and the top plate is a common point of air leakage in the home's pressure boundary. Furthermore, extreme temperatures are often found in unconditioned attics, exacerbating the efficiency and comfort impacts for the home's occupants when leakage occurs." When the thermal and pressure boundary of the home are located at the roof deck of the attic, both of the concerns listed above are no longer applicable and Item 5.2.3 is not required. That is to say: • The pressure boundary of the home moves to the roof deck, so air leaking through the drywall / top plate interface is no longer passing through the home's pressure boundary. • Installing insulation at the roof deck brings the attic within the home's thermal boundary and therefore eliminates the extreme temperatures that can be found in unconditioned attics. Item 5.2.3 will be revised to not require sealing when the thermal and pressure boundary of the home is at the roof deck. Item 5.2.3 allows "caulk, foam, or equivalent material" to be used to seal drywall to the top plate. Construction adhesive was excluded because it is not primarily intended to serve as an air sealing material and because the term encompasses many kinds of adhesives with very different properties, some of which are not conducive to this application. Based on feedback from partners, along with further research and consultation with DOE's Building America Program, drywall adhesive will now be permitted to be used to meet Item 5.2.3. Drywall adhesive is designed specifically to maintain a bond with drywall and therefore is an equivalent material for Item 5.2.3. Note that this allowance applies to drywall adhesive, not to all construction adhesives. This item will be revised as follows: "Drywall sealed to top plate at all unconditioned attic / wall interfaces using caulk, foam, drywall adhesive (but not other construction adhesives), or equivalent material. Either apply sealant directly between drywall and top plate or to the seam between the two from the attic above."

00286	**12/31/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 5.2.7 - Sealing common walls in all multifamily buildings**
				Issue: Partners have asked if the common walls of multifamily dwelling units must be air sealed even when the common wall is not constructed of drywall. Currently, this Item only requires that the gap between the "drywall shaft wall (i.e. common wall) and the structural framing between units" be sealed at all exterior boundaries.
				Resolution: The intent of this Item is to seal the gap between the common wall and the structural framing between units at all exterior boundaries, regardless of whether the common wall is constructed of drywall. To clarify this original intent, Item 5.2.7 will be revised as follows: "In multifamily buildings, the gap between the common wall (e.g. the drywall shaft wall) and the structural framing between units fully sealed at all exterior boundaries."
00320	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 5.3.1 – Gasketing versus air-sealing doors adjacent to unconditioned space**
				Issue: Partners have noted that using a gasket is the only obvious way to make a door that is adjacent to unconditioned or ambient space air-tight. Therefore, they have asked whether the use of a gasket is sufficient to meet the intent of Item 5.3.1 or if other air-sealing measures are required.
				Resolution: The intent of this Item is to use a gasket to substantially reduce air leakage around doors that separate conditioned space from unconditioned or ambient space. To reflect this clarification, Item 5.3.1 will be revised as follows: "Doors adjacent to unconditioned space (e.g., attics, garages, basements) or ambient conditions made substantially air-tight with weatherstripping or equivalent gasket."
00096	**10/31/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 5.3.1 and 5.3.2 – Attic access insulation**
				Issue: Partners have asked several questions about insulating and air sealing attic accesses, including which surfaces must be insulated for various types of access on ceilings and walls, whether non-uniform insulation levels can be used to meet the intent of the checklist items, and whether insulation may be attached to access panels or if only prefabricated covers are acceptable.
				Response: Attic access panels on vertical surfaces (i.e., walls) are required to meet the requirements for doors contained in Item 5.3.1. In contrast, Item 5.3.2 applies to attic access panels and drop-down stairs located in ceilings, where ceilings are defined as all non-vertical surfaces, regardless of slope (e.g., cathedral ceilings, tray ceilings, conditioned attic roof decks, flat ceilings, sloped ceilings). Item 5.3.2 requires that accesses be insulated to at least R-10, while attic accesses on vertical surfaces are not required to be insulated to any particular level by Item 5.3.1. Footnote 24 recognizes several examples of acceptable insulation approaches that meet the intent of Item 5.3.2, including adhering insulation to an access panel: "Examples of durable covers include,

				but are not limited to, pre-fabricated covers with integral insulation, rigid foam adhered to cover with adhesive, or batt insulation mechanically fastened to the cover (e.g., using bolts, metal wire, or metal strapping)." The insulation requirement in Item 5.3.2 applies to the surface area bounded by the gasketing material. Examples of surfaces required to be insulated for different kinds of attic accesses are available at http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_v2_v3_training_resources. Partners can meet the requirement in Item 5.3.2 for a cover insulated to at least R-10 in one of two ways. Compliance Option 1: Continuous ≥ R-10 Insulation One option to demonstrate compliance is to insulate 100% of the applicable surface area with ≥ R-10 insulation. Compliance Option 2: Alternative Equivalent U-Factor A second option to demonstrate compliance is to achieve an alternative equivalent U-factor that is less than or equal to 0.10, which shall be calculated using the following parameters: 1. The parallel path methodology outlined in Chapter 25 - *Heat, Air, and Moisture Control in Building Assemblies -Fundamentals* 2009 ASHRAE Handbook of Fundamentals shall be used; 2. Material U-factors shall be taken from Chapter 26 - *Heat, Air, and Moisture Control in Building Assemblies -Material Properties* of the 2009 ASHRAE Handbook of Fundamentals; 3. The calculation shall be performed moving from the interior surface to the exterior surface (heat transfer under winter conditions) to ensure consistent results; 4. A minimum of 75% of the applicable surface area shall be insulated to at least R-10. Footnote 24 will be revised as follows: "Examples of durable covers include, but are not limited to, pre-fabricated covers with integral insulation, rigid foam adhered to cover with adhesive, or batt insulation mechanically fastened to the cover (e.g., using bolts, metal wire, or metal strapping). In all cases, the surface area bounded by the gasketing material shall either be insulated to ≥R-10 or achieve an alternative equivalent U-factor ≤ 0.10 using the methodology defined in EPA's guidance on attic entrances available at http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_v2_v3_training_resources."
00042	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version**	**Comment**	**Item 5.3.2 – Use of weather stripping to seal attic access panels** **Issue:** Partners have asked whether weather stripping is sufficiently durable to be used as a gasketing material around attic access panels.

		3, Rev. 03)		**Resolution:** Weather stripping may be used as a gasketing material to meet the intent of Item 5.3.2.
00043	**07/25/2011**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 5.3.2 – Attic access panel insulation levels**
				Issue: Partners have asked why there is a discrepancy between the 2009 IECC's required insulation levels for attic hatches and the requirements in Item 5.3.2. The partner noted that the 2009 IECC requires that attic hatches be insulated to the same levels as the surrounding area whereas the Thermal Enclosure System Rater Checklist requires a minimum of R-10.
				Resolution: The intent of Item 2.1 is to ensure that the overall thermal envelope of the home meets or exceeds the insulation level requirements of the 2009 IECC, as demonstrated by using the prescriptive R-values, an alternative equivalent U-factor calculation, or an alternative equivalent total UA calculation. However, Item 5.3.2 of the checklist imposes a minimum insulation level of R-10 for attic access panels, which must always be met, even when using the equivalent U-factor or total UA options. That is to say, the IECC allows builders to go down to R-0 (i.e., no insulation) in all locations as long as the builder compensates elsewhere with higher levels of insulation and achieves an equivalent U-factor or total UA value. EPA has learned, however, that there are several common locations with a high potential for significant thermal bypasses. Therefore, EPA is imposing more stringent requirements than code by never allowing the insulation level to drop below the level specified in Item 5.3.2, regardless of the tradeoffs used.
00321	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Item 5.3.2 – Use of batt insulation for insulation attic access panels**
				Issue: Partners have asked if batt insulation may be glued to the attic access panel to meet the intent of Item 5.3.2.
				Resolution: Footnote 25 states that batt insulation must be mechanically fastened to the cover (e.g., using bolts, metal wire, or metal strapping). The use of glue is not an example of mechanical fastening and is not permitted to be used to meet the intent of this Item.
00322	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Item 5.3.2 – Access panels & stairs that don't separate conditioned from uncond. space**
				Issue: Partners have asked whether attic access panels and drop-down stairs that don't separate conditioned from unconditioned space must meet the requirements of Item 5.3.2. This may occur, for example, if the attic is unvented and conditioned.
				Resolution: Item 5.3.2 is only applicable to attic access panels and drop-down stairs that separate conditioned from unconditioned space.
00323	**06/01/2013**	**Thermal Enclosure System Rater**	**Comment**	**Footnote 7 - Grade I insulation installation at rim / band joists**
				Issue: Partners have expressed concern that if an interior air barrier is not included at band

		Checklist (Version 3, Rev. 06)		joists, RESNET-defined Grade 1 insulation installation cannot be achieved.
				Resolution: For rim / band joists, RESNET states that the inclusion of interior sheathing or enclosure material is optional when evaluating the insulation installation grade. The "Walls" Section of Appendix A, located on page A-11 of RESNET's *2006 Mortgage Industry National Home Energy Rating System Standards* clarifies that "For rim or band joist insulation, use the inspection guidelines under "Walls—Insulation value" to assess "Grade I", "Grade II", or "Grade III" installation. Exception: the interior sheathing/enclosure material is optional in all climate zones, provided insulation is adequately supported and meets all other requirements."
00324	**06/01/2013**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Footnote 7 – Air barrier exemptions for rim and band joists**
				Issue: Partners have asked if the exemption in Footnote 7, which exempts band joists in Climate Zones 4 through 8 from having an interior air barrier, is intended to only apply to band joists or if it also applies to rim joists.
				Resolution: The exemption in Footnote 7 was not intended to make a distinction between a rim joist and a band joist. Both rim and band joists are exempted from the requirement for an interior vertical air barrier in Climate Zones 4-8. To clarify this intent, Footnote 7 will be revised to read: "EPA highly recommends, but does not require, inclusion of an interior air barrier at rim / band joists in Climate Zones 4 through 8"
00216	**09/10/2012**	**Thermal Enclosure System Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Footnote 12 – Reduced thermal bridging requirements apply to each multifamily unit**
				Issue: Partners have asked if the exemption in Footnote 12, which allows up to 10% of the total exterior wall surface to be exempt from the reduced thermal bridging requirements to accommodate intentional designed details, may be applied to an entire multifamily building or if the exemption may only be applied to each individual multifamily unit.
				Resolution: Because only individual units within multifamily buildings are eligible to earn the ENERGY STAR, the exemption provided by Footnote 12 of this Checklist shall only be applied to individual units. Allowing this exemption to be applied to an entire multifamily building could produce a situation where more than 10% of one individual unit's exterior walls are not meeting the intent of the reduced thermal bridging requirements. This could compromise the efficiency of the thermal envelope and be detrimental to homeowner comfort.
00126	**01/15/2012**	**Thermal Enclosure System Rater Checklist (Version**	**Comment**	**Rater Pre-Drywall Inspection Date field and Rater Final Inspection Date field**
				Issue: Partners have asked if the Rater Pre-Drywall Inspection Date and Rater Final Inspection Date fields are required to be completed for every home.

		3, Rev. 04)		**Resolution:** The Rater Pre-Drywall Inspection Date and Final Inspection Date must be provided for all homes to document who completed the Checklist and when they completed it. If the builder verifies any items on the Checklist, then the Builder Inspection Date and Builder Employee fields also must be provided.
00044	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Comment**	**HVAC contractor training and credentialing**
				Issue: Partners have asked if HVAC contractors who only install ventilation systems or local mechanical exhaust must still be credentialed. Similarly, for homes with hydronic heating (e.g., a boiler) and no air conditioning, partners have asked if a credentialed HVAC contractor must still be used to design and install the ventilation and exhaust system.
				Resolution: At this time, in order to verify any items on the HVAC System Quality Installation Contractor Checklist, the contractor must complete the necessary training and credentialing. Even if the contractor only installs a whole house ventilation system, they must hold the proper credentials. However, EPA is considering whether to allow alternate credentials to be used for homes in certain circumstances, such as homes with hydronic heating and no air conditioners (where the mechanical ventilation system is the only applicable portion of the contractor checklist) or for parties that only complete the HVAC design and not the installation or commissioning of equipment.
00132	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Required credentials for HVAC contractors serving multiple markets**
				Issue: Partners have asked if HVAC contractors working in multiple markets must attend a training session for each market that they serve.
				Resolution: HVAC contractors that complete the HVAC System QI Contractor Checklist must be credentialed by an EPA-recognized industry oversight organization. The credential is awarded to companies, not to individuals, and applies to all markets served by credentialed companies. As part of the credentialing process, contractors will typically need to attend a short training explaining the application process, but this is just one step in the larger credentialing process. For more information regarding the HVAC credentialing requirements visit www.energystar.gov/newhomesHVAC.
00133	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Change**	**Required credentials for HVAC designers and Raters and applicability of Checklist to whole-house mechanical ventilation system design and installation**
				Issue: Partners have asked several questions related to HVAC credentialing: 1. For some homes, the HVAC design and HVAC installation are completed by two independent companies. Partners have asked if both entities must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). This question is of particular relevance to heating, cooling, and ventilation

				designers that do not install equipment because many elements of the currently available credential (e.g., fleet management, hazardous materials regulations, safety programs) are not relevant to such companies. 2. Footnote 1 allows Raters to verify items on the Checklist. Partners have asked if there are any restrictions on the number of items that Raters are permitted to verify and if there are any items that Raters are not permitted to verify because they require specialized training and knowledge (e.g., refrigerant testing). Some homes are built with hydronic heating systems and no air conditioning, so that the only forced-air system other than local mechanical exhaust is whole-house mechanical ventilation. Partners have asked which parts of the HVAC System Quality Installation Contractor Checklist must be completed in this case and, for the parts that must be completed, which must be completed by a credentialed HVAC contractor.
				Resolution: The intent of the HVAC credentialing requirement is to ensure that firms have adequate standards and processes in place to properly perform their work, to provide oversight through quality assurance activities, to provide a complaint resolution process, and to recognize firms that voluntarily hold themselves to these standards. The intent was not to prescribe a particular business model (i.e., a contractor who both designs and installs heating, cooling, and ventilation systems). Therefore, until credentials are available specifically for heating, cooling, and ventilation system designers, either the builder (or a firm or HERS Rater hired by the builder) or the credentialed HVAC contractor (or a firm or HERS Rater hired by the credentialed contractor) shall be permitted to design such systems and to complete Sections 1 through 5 of the HVAC System Quality Installation Contractor Checklist. As always, the designer must comply with applicable codes and laws that regulate HVAC designers and HVAC designs. When a credentialed contractor retains an uncredentialed company or HERS Rater to design systems and complete any items in Section 1 through 5, the credentialed contractor shall be responsible for ensuring that the work complies with the Checklist and that the Checklist has been completed, including preparing the documentation required by Items 1.3, 2.18, and 3.15. In essence, the responsibilities of the contractor have not changed. Rather, this resolution clarifies that credentialed contractors are permitted to retain a design company, even if that company is not itself credentialed. When a builder retains an uncredentialed company or utilizes in-house staff or a HERS Rater, the builder shall be responsible for ensuring that the work complies with the Checklist and that the Checklist has been completed, including preparing the documentation required by Items 1.3, 2.18, and 3.15. In both cases, Sections 6 through 12 of the Checklist may only be completed by a credentialed HVAC contractor. If there are no forced-air heating or cooling systems in the home, then Section 1 is the only

				section of the Checklist that must be completed. This is true even in such homes that use a forced-air ventilation system, because ASHRAE 62.2-2010 does not prescribe room-level duct design requirements for the ventilation system. The second through fourth paragraphs of Footnote 1 will be combined and revised to add the guidance on ventilation systems and to remove the guidance related to Raters (which will be relocated to Footnotes 5 and 6): “This Checklist applies to ventilation systems, split air conditioners, unitary air conditioners, air-source / water-source (i.e., geothermal) heat pumps up to 65,000 Btu / h and furnaces up to 225,000 Btu / h. All other equipment, including boilers, is exempt. If the ventilation system is the only applicable system installed in the home, then only Section 1 shall be completed.” “One Checklist shall be completed for each system and provided to the Rater. This Checklist with supporting documents may also be used to demonstrate compliance with Indoor airPLUS specifications 4.1, 4.2, 4.5, 4.6, and 7.1.” Footnote 4 will be revised to align with this policy change allowing builders, credentialed contractors, and firms that they hire to perform HVAC design: “The person responsible for the heating, cooling, and ventilation design shall be responsible for completing Sections 1 and 2 of this Checklist.” Footnote 6 will be revised to clarify the credentialed HVAC contractor’s responsibility: “The ‘Cont. Verified’ column shall be used to indicate items verified by the credentialed HVAC contractor (or a firm or HERS Rater hired by the contractor). The credentialed contractor is responsible for these Items and shall sign the bottom of this Checklist.” The second verification column on the Checklist will be revised from “Rater Verified” to “Builder Verified” so that the “Builder Verified” and “Cont. Verified” columns reflect the parties responsible for the completion of the Checklist. A new footnote will be added to the “Builder Verified” column to clarify the builder’s responsibility: “The ‘Builder Verified’ column shall be used to indicate items verified by the builder (or a firm or HERS Rater hired by the builder). The builder is responsible for these Items and must sign the bottom of this Checklist if any items in Sections 1 through 5 on this Checklist have been marked ‘Builder Verified’. Only credentialed contractors may complete Items in Sections 6-10.” The signatures at the bottom of the Checklist will be revised to collect the name, signature, and date of signature of representatives of the credentialed HVAC contractor and the builder. Footnote 25 will be applied to the builder name, signature, and date of signature, and will explain that the builder’s signature is only required if items on the Checklist have been marked “Builder Verified.”: “Builder name, signature, and signature date are required if any items in Sections 1 through 5 have been marked ‘Builder Verified’.”

00134	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Section 1 – ASHRAE 62.2-2010**
				Issue: Partners have asked where they can obtain a copy of ASHRAE 62.2.-2010: Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.
				Resolution: ASHRAE 62.2-2010 can be previewed and purchased at http://openpub.realread.com/rrserver/browser?title=/ASHRAE_1/ashrae_62_2_2010_1024.
00217	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Comment**	**Section 1 - No maximum allowable ventilation rate**
				Issue: Partners have asked if there is a maximum allowable ventilation rate that must not be exceeded in order to certify a home.
				Resolution: Section 1 of the checklist requires a ventilation system installed that has been designed to meet ASHRAE 62.2-2010. ASHRAE 62.2-2010 specifies a minimum ventilation rate that must be met, but it does not specify a maximum ventilation rate. Therefore, a home must meet the minimum ventilation rate specified by ASHRE 62.2-2010, but there is no maximum allowable ventilation rate that must not be exceeded in order to certify a home. However, it is important to recognize that ventilation rates above the minimum requirements of ASHRAE 62.2-2010 may increase the latent and sensible loads in the home as well as the energy consumption of the ventilation system. Therefore, EPA recommends that designers consider these factors when selecting the design ventilation rate.
00325	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Comment**	**Section 1 – The use of exhaust–only whole-house ventilation systems and air inlets**
				Issue: Partners have asked if the use of an exhaust–only whole-house ventilation system is permitted and, if so, whether a ventilation air inlet is required.
				Resolution: An exhaust-only whole-house mechanical ventilation system is permitted to be used to meet the intent of Section 1. A ventilation air inlet is not required to be used with such systems. However, if a partner chooses to include a ventilation air inlet in the home, then it must meet the requirements of Section 7 of the HVAC System QI Rater Checklist. This Section defines minimum required distances from known sources of contamination, minimum required distances above roof decks and grade, restrictions on obstructions, restrictions on sources of ventilation air, and a requirement for a rodent / insect screen.
00326	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Comment**	**Item 1.2 – Use of non-motorized damper on return side of HVAC system**
				Issue: Partners have asked if a whole-house ventilation system that utilizes an intake duct to the return side of the HVAC system with a non-motorized damper is permitted to meet Item 1.2.
				Resolution: A whole-house ventilation system that utilizes an intake duct to the return side of

				the HVAC system with a non-motorized damper is not permitted to be used to meet Item 1.2. As stated in Item 1.2, a whole-house ventilation system of this type must restrict outdoor air intake when not in use: "Ventilation system does not utilize an intake duct to the return side of the HVAC system unless the system is designed to operate intermittently and automatically based on a timer and to restrict outdoor air intake when not in use (e.g., motorized damper)."
00045	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 1.1 and 1.5 – Ventilation system requirements**
				Issue: Partners have asked whether Item 1.5 is a requirement that can be met in place of Item 1.1, which requires that a ventilation system be designed to meet ASHRAE 62.2-2010 requirements, or if Item 1.1 must always be met.
				Resolution: A whole-building mechanical ventilation system that meets the requirements of ASHRAE 62.2-2010 shall be installed in each qualified home. To improve clarity, Item 1.1 will be revised as follows: "Ventilation system installed that has been designed to meet ASHRAE 62.2-2010 requirements including, but not limited to, requirements in Items 1.2-1.5."
00046	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Change**	**Footnote 7 and 18 – HVAC design for multiple orientations**
				Issue: Partners have requested that EPA combine Footnotes 7 and 18, which relate to HVAC design, into a single footnote for clarity. Partners have also requested that EPA clarify the other design requirements for homes with multiple configurations or orientations and that some tolerance be provided when designing the duct system in order to minimize the number of different duct designs that need to be managed for a single plan.
				Resolution: Footnotes 7 and 18 will be combined into a single footnote, which will read as follows: "Heating and cooling loads shall be calculated, equipment shall be selected, and duct systems shall be sized according to the latest editions of ACCA Manuals J, S, & D, respectively, ASHRAE 2009 Handbook of Fundamentals, or a substantively equivalent procedure. The HVAC system design shall be completed for the planned orientation and configuration of the home except as permitted herein." "For house plans with multiple configurations or that may be built in more than one orientation, the loads shall be calculated for each potential orientation or alternate configuration. If the loads across all orientations vary by ≤ 25%, then the largest load shall be permitted to be used for equipment selection for all orientations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each orientation into a set with ≤ 25% variation and equipment selection shall be completed for each set of loads." "For house plans with multiple configurations or that may be built in more than one orientation, the room-level design airflows shall be calculated for each potential orientation or alternate configuration. If the design airflows for each room vary across all orientations and configurations by ≤ 25% or 25 CFM, then the average room-level design airflow shall be

				permitted to be used when designing the duct system. Otherwise, the contractor shall group the room-level design airflow for each orientation and configuration into a set with ≤ 25% or 25 CFM variation and the duct design shall be completed for the average airflow of that set.”
00138	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Footnote 7 – Worst-case configurations in HVAC design**
				Issue: Partners have asked whether they can calculate loads and select equipment for a set of home plan configurations based on the worst-case configuration or if they must calculate loads and select equipment for each individual configuration instead. For example, if a plan can be built with either an unconditioned porch or an optional conditioned sun room, can loads be calculated and equipment be selected using the worst-case configuration, which will likely include the sunroom, even if the plan will sometimes be built without the sunroom?
				Resolution: Footnote 7 defines how loads are to be calculated for home plans built in different configurations based on the date of final inspection for the home: *“For homes with a date of final inspection through 12/31/2012*: “For each house plan with multiple configurations (e.g., orientations, elevations, options), the loads shall be permitted to be calculated for the configuration that will result in the largest load. The largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S. “For each house plan with multiple configurations, the room-level design airflows shall be permitted to be calculated using the configuration that resulted in the largest load. *“For homes with a date of final inspection on or after 01/01/2013*: “For each house plan with multiple configurations (e.g., orientations, elevations, options), the loads shall be calculated for each potential configuration. If the loads across all configurations vary by ≤ 25%, then the largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each configuration into a set with ≤ 25% variation and equipment selection shall be completed for each set of loads. “For each house plan with multiple configurations, the room-level design airflows shall be calculated for each potential configuration. If the design airflows for each room vary across all configurations by ≤ 25% or 25 CFM, then the average room-level design airflow shall be permitted to be used when designing the duct system. Otherwise, the contractor shall group the room-level design airflow for each configuration into a set with ≤ 25% or 25 CFM variation and the duct design shall be completed for the average airflow of that set.” For homes that will have final inspection dates on or prior to 12/31/2012, loads can be calculated and equipment can be selected based on the worst-case configuration, subject to the oversizing limits of ACCA Manual S. In this case, the heating and cooling loads do not

				need to be calculated for every configuration; only the loads for the worst-case configuration may be calculated. In the case of a home plan with an optional sunroom, the sunroom will typically be part of the worst-case configuration. For homes with final inspection dates on or after 1/1/2013, however, the loads for each configuration must be calculated. The largest load is then permitted to be used to select equipment (subject to the oversizing limits of ACCA Manual S) only if the loads across all configurations vary by no more than 25%.
00047	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Comment**	**Item 1.1 – Required flow rate for mechanical ventilation systems**
				Issue: Partners have asked EPA how to calculate the required flow rate for intermittent and continuous ventilation systems under ASHRAE 62.2-2010. Partners have also asked if a control strategy in which the system delivers less than the required ventilation rate will meet the intent of Item 1.1.
				Resolution: The ASHRAE standard defines the minimum required ventilation flow rate based upon the floor area, number of bedrooms, duration of the cycle time (i.e., the total time for one on-cycle and one off-cycle), and the fraction of time that the system is on during each cycle. Partners should consult the standard for the relevant equations. Item 1.1 requires a control strategy that delivers at least 100% of the minimum required ventilation rate, so strategies that deliver less than that amount are not acceptable. That is not to say that the ventilation system must run every hour. Because the ASHRAE standard considers the duration of the cycle time and the fraction of time that the system is on during each cycle, it is possible to design a ventilation system that does not operate every hour yet meets the requirements of the ASHRAE standard.
00048	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Comment**	**Item 1.1 – Requirements for make-up air when using an exhaust-only ventilation system**
				Issue: Partners have asked if make-up air or air inlets are required for exhaust-only ventilation systems.
				Resolution: ASHRAE 62.2-2010 does not require air inlets for exhaust only systems as long as the delivered ventilation rate meets the design ventilation rate.
00135	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Item 1.1 – Whole house mechanical ventilation**
				Issue: Partners have asked if a whole-house mechanical ventilation system must be installed in a home, even if the home can provide the ventilation rate required by ASHRAE 62.2-2010 through infiltration alone without any mechanical systems.
				Resolution: The ventilation rate defined in ASHRAE 62.2-2010 was derived assuming a default level of infiltration. The committee recently clarified that, per Section 4.1.2 of that standard, Licensed Design Professionals may certify homes as ASHRAE 62.2 compliant when the sum of the designed/measured natural (i.e. infiltration) and mechanical ventilation of the

				home meets or exceeds the sum of the Infiltration Credit (Section 4.1.3) and Ventilation Rate (Section 4.1) of the same home; excess infiltration over and above the default rate being an acceptable method for meeting the required whole-house ventilation rates. With that said, homes with high infiltration rates may have difficulty meeting other program requirements, such as meeting the mandatory air sealing requirements in Section 5 of the Thermal Enclosure System Rater Checklist and the ENERGY STAR HERS index target. Therefore, it is unlikely that qualified homes will be able to be built without a whole-house mechanical ventilation system and EPA does not recommend this practice.
00327	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Clarification**	**Items 2.1 to 2.3 & Footnote 8 - Allowable HVAC Design Methodologies & Software**
				Issue: Partners have noted that Items 2.1, 2.2, 2.3 and Footnote 8 allow "substantively equivalent procedures" to be used to calculate loads, select equipment, and design ductwork and have asked what procedures would be considered equivalent. On a related topic, partners have asked whether software is required to be used to complete these tasks and, if so, must the software meet any specific requirements. Partners have also asked, specifically, may Trane's TRACE software or Carrier's HAP software be used.
				Resolution: To clarify the intent of "or a substantively equivalent procedure" in Footnote 8, this phrase will be replaced with "or other methodology approved by the Authority Having Jurisdiction". To reflect these changes the first paragraph of Footnote 8 will be revised to read: "Heating and cooling loads shall be calculated, equipment shall be selected, and duct systems shall be sized according to the latest editions of ACCA Manuals J, S, & D, respectively, 2009 ASHRAE Handbook of Fundamentals, or other methodology approved by the Authority Having Jurisdiction. The HVAC system design shall be completed for the specific configuration (e.g., plan, elevation, option, and orientation) of the home to be built except as permitted herein." Note that this will not alter the documentation requirements for the program, but rather simply clarify the intent that alternate design methodologies be approved by the Authority Having Jurisdiction. Regarding software, EPA recommends, but does not require, that loads be calculated, equipment be selected, and ducts be designed using software. In practice, many designers will choose to use software to save time and money and to improve the accuracy and the consistency of their results. When designers choose to use software, EPA recommends that the designer either verify with the vendor that the software is intended for use in residential design or, if calculating loads in accordance with ACCA Manual J or designing ducts in accordance with ACCA Manual D, that the designer select a program approved by ACCA, as listed at: https://www.acca.org/industry/system-design/software. In regards to the use of Trane's TRACE software and Carrier's HAP software, per the

				resolution above, at this time EPA does not require that specific programs be used nor prohibit specific programs from being used. Therefore, these programs are permitted to be used though, after consultation with these software vendors, EPA does not recommend their use for ENERGY STAR certified homes. Finally, EPA does permit an HVAC Quality Installation Training & Oversight Organization (H-QUITO), if they desire, to set restrictions on whether software must be used and, if so, what programs are acceptable. This flexibility is intended to allow the H-QUITO to conduct quality assurance more reliably and efficiently.
00136	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Item 2.2 – Ductilators**
				Issue: Partners have asked whether a ductilator and hand calculations are permitted to be used to design duct systems according to ACCA Manual D or if software must be used.
				Resolution: Ductilators and hand calculations are permitted to be used to comply with ACCA Manual D. Duct design software tools are also permitted to be used, but are not required.
00328	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Comment**	**Items 2.2 and 2.17 – Applicability of ductwork design**
				Issue: Partners have asked when the “N/A” checkboxes next to Items 2.2 and 2.17 are permitted to be checked.
				Resolution: The “N/A” boxes included next to Items 2.2 and 2.17 are permitted to be checked for a home that does not have a duct distribution system. For a home with one or more HVAC systems that do have ductwork, the “N/A” boxes are not permitted to be checked and the duct design must be completed in accordance with ACCA Manual D or a substantively equivalent procedure.
00218	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev.05)**	**Clarification**	**Item 2.18 – Clarification of intent for full load calculation report**
				Issue: Partners have asked for clarification on what must be included in the documentation for the full load calculation to meet the intent of Item 2.18.
				Resolution: To clarify the documentation that is required to meet the intent of Item 2.18, a new Footnote will be added that reads as follows: “The load calculation for the home shall be provided, documenting all design elements and all resulting loads, including but not limited to the values listed in Items 2.1 through 2.17.”
00329	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Comment**	**Section 3 – Applicability to heat pump systems**
				Issue: Partners have asked if homes with heat pumps installed to serve the cooling load are required to complete Section 3.
				Resolution: The intent of Section 3 is to collect data about the cooling equipment that has been installed in the home. Therefore, if a heat pump is installed that serves a cooling load,

				Section 3 must be completed with data for this heat pump.
00219	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Change**	**Items 3.2, 3.4, and 5.2 - Equipment serial numbers**
				Issue: Partners have suggested that the manufacturer and model name is sufficient for documenting the HVAC equipment used in an ENERGY STAR Home and that the value of documenting the serial number of the equipment used in each home is outweighed by the effort required to do so.
				Resolution: Items 3.2, 3.4, and 5.2 will be removed from this Checklist.
00330	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Clarification**	**Items 4.1 to 4.3, 7.10, & Footnote 1 – Applicability to mini / multi-split, geothermal, & hydronic systems**
				Issue: Partners have asked for additional guidance on the applicability of this Checklist to mini-split / multi-split air conditioner and heat pump systems, geothermal air conditioner and heat pump systems, and hydronic systems.
				Resolution: With regards to mini-split / multi-split air conditioners and heat pumps, for the purposes of the ENERGY STAR Certified Homes program, the following definition will be assumed for this system type: "Mini-split / multi-split air conditioners and heat pumps have variable refrigerant flow and distributed refrigerant technology with the capability of serving multiple indoor sections with a single outdoor section. The indoor sections are typically mounted on room walls and/or ceilings and designed to heat or cool air within the conditioned space either directly or through limited duct runs (e.g., less than 10 feet)." Because mini-split / multi-split HVAC systems generally require an atypical or undocumented process to complete the design and commissioning requirements of this Checklist, these systems will be exempted from the Checklist. While proper design and commissioning of such systems is valuable, the industry does not currently have standardized procedures for achieving this. The program will be better served by allowing the use of these innovative systems, rather than prohibiting their use until such standards are developed. With regards to geothermal air conditioner and heat pump systems, the commissioning requirements will be dependent on whether the distribution system is forced-air or hydronic. Because Manual J, Manual S, and Manual D are generally applicable to ground-source heat pump systems with forced-air distribution, Sections 2 through 4 must be completed. However, to better accommodate the performance characteristics of ground-source heat pump systems, the following edits will be made to these Sections: Item 4.1 will be modified by adding a field for the efficiency of the ground-source heat pump in units of COP: "AHRI Listed Efficiency: Air-Source _____ HSPF or Ground-Source _____ COP"

				Documenting the part-load performance of ground-source heat pumps will not be required in Items 4.2 & 4.3. This will be addressed by adding a new Footnote to these items, which will state: "Items 4.2 and 4.3 are not applicable to ground-source heat pumps." In regards to commissioning tests, Section 6 & 7 already provide an option to use an OEM test procedure in lieu of a superheat or subcooling refrigerant test. Therefore, no modifications are needed to these Sections other than to reinforce that an OEM test is permitted to be used in the case of a ground-source heat pump. Item 7.10 will be revised to read: "An OEM test procedure (e.g., as defined for a ground-source heat pump) has been used in place of sub-cooling or super-heat process and documentation has been attached that defines this procedure." Regarding ground-source heat pumps with hydronic distribution, this system type will be exempted from the Checklist. Manual S does not address this system type – it only addresses "water-to-air heat pumps" – and Manual D is not applicable. Furthermore, two of the four commissioning tests (i.e., assessing airflow across the evaporator and airflow at registers) will not be applicable to this system type. While proper design and commissioning of such systems is valuable, this is beyond the scope of the program at this time. Other systems with hydronic distribution are also exempt from the requirements of Sections 2 through 12 of this checklist. EPA encourages, but does not require, proper design and installation of such systems. Therefore, for a home that only has hydronic distribution systems, the only portion of this checklist that would need to be completed is Section 1, Whole-Building Mechanical Ventilation Design. Every home is required to have a mechanical ventilation system designed to meet ASHRAE 62.2-2010 requirements. In addition, to further improve the clarity and consistency with which the program requirements are enforced, Footnote 1 will be edited to indicate that the Checklist only applies to the system types listed in the Footnote when coupled with a forced-air distribution system. To reflect these changes, the second paragraph of Footnote 1 will be revised as follows: "This Checklist applies to ventilation systems; to split air conditioners, unitary air conditioners, air-source heat pumps, and water-source (i.e., geothermal) heat pumps up to 65,000 Btu / h with forced-air distribution systems (i.e., ducts); and to furnaces up to 225,000 Btu / h with forced-air distribution systems (i.e., ducts). All other permutations of equipment (e.g., boilers, mini-split / multi-split systems) and distribution systems are exempt. If the ventilation system is the only applicable system installed in the home, then only Section 1 shall be completed."
00049	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version**	**Clarification**	**Section 6 – Guidance on refrigerant charge test in cold weather** **Issue:** This section notes that if cold weather makes it impossible to verify proper refrigerant charge, the system must include a TXV. Partners have asked EPA to define the cold weather conditions for which a refrigerant test is not possible.

		3, Rev. 03)		**Resolution:** To promote consistent enforcement of this exemption, EPA will revise the note in this section, as follows: "Note: If outdoor ambient temperature at the condenser is ≤ 55°F or, if known, below the manufacturer-recommended minimum operating temperature for the cooling cycle, then the system shall include a TXV, and the contractor shall mark "N/A" on the checklist for Section 6 & 7."
00331	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Comment**	**Section 6 and Section 7 – Temperature and pressure measurements**
				Issue: Partners have noted that only particular Items in Section 6 are needed to complete Section 7, and these Items are dependent on the type of metering device used. This has prompted partners to ask if all Items in Section 6 are always required to be completed.
				Resolution: Systems using a TXV metering device are not required to complete the following Items: • 6.2 (Return-side air temperature) • 6.5 (Suction line pressure) • 6.6 (Suction line temperature) Systems using a fixed orifice metering device are not required to complete the following Items: • 6.3 (Liquid line pressure) • 6.4 (Liquid line temperature) Note that Item 6.1 (Outdoor ambient temperature) is required to be completed regardless of whether the system uses a TXV or fixed orifice metering device. For systems with a TXV metering device, this value is used to document if the outdoor ambient temperature at the condenser is ≤ 55 °F or, if known, below the manufacturer-recommended minimum operating temperature for the cooling cycle. If either of these conditions is true, then the contractor shall mark "N/A" on the Checklist for Sections 6 & 7. For systems with a fixed orifice metering device, this value is needed for Item 7.7 to determine the superheat goal.
00050	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Change**	**Section 8 – Simplified electrical measurements**
				Issue: Partners have asked EPA to clarify which components contractors need to complete electrical measurements for and what the justification is for including watts as a test parameter. Regarding components, partners specifically questioned whether the condenser fan needed to be tested, given that this equipment is typically integral to the condenser unit and not easily accessible.
				Resolution: EPA's intent was to align with the requirements of the ANSI/ACCA 5 QI-2007 protocol. This protocol requires that the contractor measure the line voltage, low voltage, and

				amperages for all components with rating plates to ensure that the difference between the measured and rating plate values are within the OEM's tolerance. With this in mind, EPA will simplify and clarify the requirements by listing only the two most common components (i.e., the evaporator/air handler fan and the condenser unit) and by only requiring that the amperage and line voltage values be measured and reported. Therefore, Section 8 will be revised as follows: "8. Electrical Measurements – *Taken at electrical disconnect while component is in operation* "8.1 Evaporator/air handler fan: ____ amperage _____line voltage "8.2 Condenser unit: ____ amperage _____line voltage "8.3 Electrical measurements within OEM-specified tolerance of nameplate value"
00332	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Refinement**	**Item 8.1 – Elec. measurements required for both evaporator & furnace air handler fans**
				Issue: Partners have noted some may misinterpret Item 8.1 as only applying to air handler fans for cooling systems.
				Resolution: To avoid any potential misinterpretation about the fact that electrical measurements are required for air handler fans of both heating and cooling systems, Item 8.1 will be revised to read: "Evaporator or furnace air handler fan:"
00137	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Refinement**	**Item 9.2 – Typographical error**
				Issue: EPA has identified a minor typographical error in Item 9.2.
				Resolution: The word "Cooing" in Item 9.2 will be revised to "Cooling".
00220	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Change**	**Item 9.6 - Indication of air flow test methodology**
				Issue: Partners have noted that HVAC contractors are required to measure the return and supply duct static pressure per Item 9.3 and 9.4. As such, of the air flow test methodologies listed in Item 9.6, the use of the Fan Curve methodology is always implied and the completion of Item 9.6 is not providing additional value.
				Resolution: Because the use of the Fan Curve methodology is always implied in Item 9.6, the completion of this Item is not providing additional value and will be removed, along with the associated Footnote 22.
00191	**06/27/2012**	**HVAC System Quality Installation Contractor**	**Change**	**Section 10 – Air Balancing**
				Issue: Policy Record ID 00221 contains the most recent resolution of this issue. This issue (ID 00191) is only being retained to maintain a complete Policy Record.

		Checklist (Version 3, Rev. 05)		Partners have asked that Raters be provided the option to measure the airflow out of each supply and return register in lieu of HVAC contractors and verify that the value is within the accepted tolerance relative to the design value. Currently, only HVAC contractors are permitted to measure and verify register airflows, per Item 10.1, and document these values on the balancing report, per Item 10.2. Partners have noted that RESNET has defined on-site inspection procedures for measuring the airflow out of registers in Section 804.2 of the Mortgage Industry National Home Energy Rating System Standards. Partners have also noted that providing Raters with the option to measure and verify airflow in lieu of HVAC contractors would provide additional flexibility to meet the same intent as the current program requirements.
				Resolution: Policy Record ID 00221 contains the most recent resolution of this issue. This issue (ID 00191) is only being retained to maintain a complete Policy Record. A Rater shall be permitted, as an alternative to the HVAC contractor, to measure the airflow out of each supply and return register; to document the values on the balancing report; and to verify that the measured values are within the accepted tolerance relative to the design value. For instances in which the Rater-verified airflow is not within the greater of ± 20% or 25 CFM of the design airflow, the contractor shall be required to correct the balancing of the system prior to final Rater-verification of the airflow. As partners have noted, RESNET has defined on-site inspection procedures for measuring the airflow out of registers in Section 804.2 of the Mortgage Industry National Home Energy Rating System Standards. In addition to these procedures, RESNET and Rating Providers are responsible for providing oversight of Raters that utilize these procedures. Consistent with Policy Record Issue 00190, Raters working under an accredited Sampling Provider may use the applicable (either RESNET or California Energy Commission) sampling protocol to verify any inspection checklist item that may be designated “Rater Verified”. When using the sampling protocol, Raters shall consider collectively the measurement of the airflow out of each supply and return register in a single home; the documentation of those values on the balancing report; and the verification that those measured values are within the accepted tolerance as a single measure when designing sampling controls. For example, if there are 20 registers in each home in a sample set, and the Rater wishes to use the sampling protocol, the Rater shall measure the airflow of all 20 registers in the home selected for the airflow inspections; document these values on the balancing report; and verify that all 20 values are within the accepted tolerance. The Rater is not permitted to test 6 registers in one home in the set and the remaining 14 registers in a second home in the set. Raters that elect to use this new option to measure, document, and verify airflows prior to the release of Revision 06 shall maintain documentation that clearly identifies whether the

				contractor or the Rater completed this work for each certified home. To reflect this change, Item 10.1 on this Checklist will be revised as follows: "10.1 Balancing report prepared and attached indicating the room name and design airflow for each supply and return register. In addition, final individual room airflows measured and documented through one of the following options: 10.1.1 Measured by contractor using ANSI / ACCA 5 QI-2007 protocol, documented by contractor on the balancing report, & verified by contractor to be within the greater of ± 20% or 25 CFM of design airflow, OR; 10.1.2 To be measured, documented, and verified by a Rater per Item 1.4.2 of the HVAC System QI Rater Checklist" Item 10.2 of this Checklist, which had addressed the requirements of the balancing report, will be removed because these requirements will have been integrated into the revised Item 10.1. In addition, Item 1.4 will be added to the HVAC System QI Rater Checklist and will state: "1.4 Contractor-prepared balancing report indicating the room name and design airflow for each supply and return register collected by Rater for records. In addition, final individual room airflows measured and documented on balancing report through one of the following options: 1.4.1 Measured and documented by contractor (10.1.1), OR; 1.4.2 Measured by Rater using Section 804.2 of the Mortgage Industry National HERS Standard, documented by Rater, & verified by Rater to be within the greater of ± 20% or 25 CFM of design airflow (10.1.2)" Footnote 10 will be added to Item 1.4.2 and will state: "For instances in which the Rater-verified airflow is not within the greater of ± 20% or 25 CFM of the design airflow, the contractor shall correct the balancing of the system prior to final Rater-verification of the airflow." Finally, Item 1.1 of the HVAC System QI Rater Checklist will be revised by removing the reference to the balancing report, which is now addressed in Item 1.4. Item 1.1 will state: "HVAC System Quality Installation Contractor Checklist completed in its entirety and collected for records, along with documentation on ventilation system (1.3), full load calculations (2.18), and AHRI certificate (3.15)."
00221	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Change**	**Section 10 – Air Balancing** **Issue:** Partners have requested that Raters be provided the option to measure the airflow out of each supply and return register in lieu of HVAC contractors and verify that the value is within the accepted tolerance relative to the design value. Currently, only HVAC contractors are permitted to measure and verify register airflows, per Item 10.1, and document these values on the balancing report, per Item 10.2.

				Partners have noted that RESNET has defined on-site inspection procedures for measuring the airflow out of registers in Section 804.2 of the Mortgage Industry National Home Energy Rating System Standards. Partners have also noted that providing Raters with the option to measure and verify airflow in lieu of HVAC contractors would provide additional flexibility to meet the same intent as the current program requirements.
				Resolution: A Rater shall be permitted, as an alternative to the HVAC contractor, to measure the airflow out of each supply and return register; to document the values on the balancing report; and to verify that the measured values are within the accepted tolerance relative to the design value. As partners have noted, RESNET has defined on-site inspection procedures for measuring the airflow out of registers in Section 804.2 of the Mortgage Industry National Home Energy Rating System Standards. In addition to these procedures, RESNET and Rating Providers are responsible for providing oversight of Raters that utilize these procedures. Consistent with Policy Record Issue 00190, Raters working under an accredited Sampling Provider may use the applicable (either RESNET or California Energy Commission) sampling protocol to verify any inspection checklist item that may be designated “Rater Verified”. When using the sampling protocol, Raters shall consider collectively the measurement of the airflow out of each supply and return register in a single home; the documentation of those values on the balancing report; and the verification that those measured values are within the accepted tolerance as a single measure when designing sampling controls. For example, if there are 20 registers in each home in a sample set, and the Rater wishes to use the sampling protocol, the Rater shall measure the airflow of all 20 registers in the home selected for the airflow inspections; document these values on the balancing report; and verify that all 20 values are within the accepted tolerance. The Rater is not permitted to test 6 registers in one home in the set and the remaining 14 registers in a second home in the set. To reflect this change, Item 10.1 on this Checklist will be revised as follows: “10.1 Balancing report prepared and attached indicating the room name and design airflow for each supply and return register. In addition, final individual room airflows measured and documented through one of the following options: 10.1.1 Measured by contractor using ANSI / ACCA 5 QI-2007 protocol, documented by contractor on the balancing report, & verified by contractor to be within the greater of ± 20% or 25 CFM of design airflow, OR; 10.1.2 To be measured, documented, and verified by a Rater per Item 1.4.2 of the HVAC System QI Rater Checklist” Item 10.2 of this Checklist, which had addressed the requirements of the balancing report, will be removed because these requirements will have been integrated into the revised Item 10.1.

				In addition, Item 1.4 will be added to the HVAC System QI Rater Checklist and will state: "1.4 Contractor-prepared balancing report indicating the room name and design airflow for each supply and return register collected by Rater for records. In addition, final individual room airflows measured and documented on balancing report through one of the following options: 1.4.1 Measured and documented by contractor (10.1.1), OR; 1.4.2 Measured by Rater using Section 804.2 of the Mortgage Industry National HERS Standard, documented by Rater, & verified by Rater to be within the greater of ± 20% or 25 CFM of design airflow (10.1.2)" Policy Record Issue 00191 had proposed the addition of a Footnote to Item 1.4.2 that would have explicitly limited the actual act of balancing to contractors alone, thereby not permitting Raters to perform this task. To be consistent with the program's approach to duct leakage, infiltration, and insulation installation, for which the program does not dictate who is responsible for sealing the ducts, sealing holes in the enclosure, or installing the insulation, this proposed Footnote will not be added. Finally, Item 1.1 of the HVAC System QI Rater Checklist will be revised by removing the reference to the balancing report, which is now addressed in Item 1.4. Item 1.1 will state: "HVAC System Quality Installation Contractor Checklist completed in its entirety and collected for records, along with documentation on ventilation system (1.3), full load calculations (2.18), and AHRI certificate (3.15)."
00222	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Comment**	**Item 10.1 – Options for meeting air flow balancing requirement**
				Issue: Partners have asked how balancing can be accomplished if neither a balancing damper located at the trunk nor Opposable Blade Dampers (OBD) are installed.
				Resolution: When not using a balancing damper located at the trunk or Opposable Blade Dampers, balancing can sometimes be accomplished if duct design and installation is performed according to Manual D and little or no variations are introduced to the duct system during installation. As a reminder, individual room airflows must be within ± 20% or 25 CFM of the design / application airflow. For example, if a given supply register has a design airflow of 40 CFM, any measured airflow rate for that register between 15 CFM and 65 CFM would meet the requirements of Item 10.1.
00139	**01/15/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)**	**Comment**	**Footnote 22 – Inaccessible balancing dampers**
				Issue: Partners have asked how balancing dampers should be installed in ducts in flat attics where there is usually no access to balance the ducts once they are installed.
				Resolution: Footnote 22 clarifies where balancing dampers are permitted to be installed: "When balancing dampers are used, they shall be located at the trunk to limit noise unless the trunk will not be accessible when the balancing process is conducted. In such cases,

				Opposable Blade Dampers (OBD) or dampers located in the duct boot are permitted." Alternatively, electronic dampers can be installed so that the system can be balanced without direct access to the ductwork.
00051	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Change**	**Item 10.2 – Test and balance documentation**
				Issue: This item requires that the contractor provide a "balancing report indicating quantity of supply and return terminals per room". Partners have observed that contractors also need to provide the design flow rate for each supply register so that the Rater has the ability to verify that the proper free area opening has been provided for pressure balancing purposes.
				Resolution: EPA will edit this item to clarify the parameters that must be included, as follows: "Balancing report indicating, for each supply and return register: room name, design airflow, and final measured airflow".
00052	**07/25/2011**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 12.1 – Drain pan for each HVAC component that produces condensate**
				Issue: Partners have asked that EPA clarify that a drain pan is required for each piece of HVAC equipment that produces condensate (as opposed to having the contractor affirm just one per home).
				Resolution: EPA will revise this item as follows to clarify that each piece of HVAC equipment that produces condensate shall have a drain pan: "Corrosion-resistant drain pan, properly sloped to drainage system, included with each HVAC component that produces condensate".
00333	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Comment**	**Item 12.1 – Use of internal versus external drain pans**
				Issue: Partners have asked if an additional external drain pan is required when an internal drain pan is used to meet the intent of Item 12.1.
				Resolution: Either an internal or external drain pan that meets the requirements of Item 12.1 is permitted to be used. No additional external drain pan is required by the program when an internal drain pan is used. However, note that local building codes may dictate whether an internal or external drain pan is permitted to be used. If this is the case, then the local code requirements should be followed regardless of whether the home is certified.
00223	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev.05)**	**Change**	**Signature Block - Addition of field for HVAC company name**
				Issue: Partners have noted that HVAC Quality Installation Training and Oversight Organizations provide credentials at the HVAC company level rather than at the HVAC contractor level. Yet, the signature section at the bottom of this Checklist only includes a field for the HVAC contractor name and not a field for the HVAC company name. Partners have suggested that the addition of a field for the HVAC company name on this Checklist would be helpful, rather than its current location on the cover page of the Inspection Checklists.

				Resolution: The signature section at the bottom of the Checklist will be revised by adding a field for the HVAC Company Name and removing this field from the cover page of the Inspection Checklists.
00334	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Change**	**Signature Block – Addition of line for credentialing organization**
				Issue: Partners have noted that for record keeping and quality assurance purposes, it would be helpful to add a line to the signature block for the contractor to indicate through which credentialing organization they received their credentials.
				Resolution: A line will be added to the signature block that reads as follows: "Credentialing Organization: ACCA / AE / Other"
00335	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Change**	**Footnote 1 – Alignment with Indoor airPLUS language**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. In addition, it now clearly indicates what is required above and beyond ENERGY STAR certification to earn the Indoor airPLUS label. Therefore, the reference to the use of this Checklist as a means to demonstrate compliance with Indoor airPLUS program requirements is no longer appropriate.
				Resolution: Because EPA's Indoor airPLUS program requires ENERGY STAR Certification and now clearly indicates what is required above and beyond these requirements to earn the Indoor airPLUS label, the following sentence will be removed from Footnote 1: "This Checklist with supporting documents may also be used to demonstrate compliance with Indoor airPLUS specifications 4.1, 4.2, 4.5, 4.6, and 7.1."
00224	**09/10/2012**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 05)**	**Clarification**	**Footnotes 5 and 6 – Parties eligible to complete Sections 6 through 12**
				Issue: Partners have noted that Footnote 5 indicates that only credentialed contractors are permitted to complete Items in Sections 6-10. This Footnote does not identify who is permitted to complete Section 11 & 12, even though the Checklist itself only has checkboxes for the contractor to complete these two Sections. Additionally, partners have noted that Footnote 6 indicates that the 'Cont. Verified' column is permitted to be completed by the credentialed HVAC contractor, or a firm or HERS Rater hired by the contractor. This guidance inadvertently conflicts with the guidance in Footnote 5 regarding Sections 6 through 10.
				Resolution: To reiterate, until credentials are available for heating, cooling, and ventilation system designers, either the builder (or a firm or HERS Rater hired by the builder) or the credentialed HVAC contractor (or a firm or HERS Rater hired by the credentialed contractor) shall be permitted to design such systems and to complete Sections 1 through 5 of this

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

				completed for the specific configuration (e.g., plan, elevation, option, and orientation) of the home to be built except as permitted herein. For each house plan with multiple configurations (e.g., orientations, elevations, options), the loads shall be calculated for each potential configuration. If the loads across all configurations vary by ≤ 25%, then the largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each configuration into a set with ≤ 25% variation and equipment selection shall be completed for each set of loads. For each house plan with multiple configurations, the room-level design airflows shall be calculated for each potential configuration. If the design airflows for each room vary across all configurations by ≤ 25% or 25 CFM, then the average room-level design airflow shall be permitted to be used when designing the duct system. Otherwise, the contractor shall group the room-level design airflow for each configuration into a set with ≤ 25% or 25 CFM variation and the duct design shall be completed for the average airflow of that set.”
00337	**06/01/2013**	**HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)**	**Change**	**Footnote 17 - Guidelines for ventilation systems that use HVAC air handler**
				Issue: Footnote 17 specifies fan requirements for whole-house ventilation systems that utilize the HVAC air handler. It provides two compliance options, one of which requires in part that the air handler fan run at a reduced speed during ventilation. Partners have suggested that this requirement may not be desirable (e.g., if the ventilation air will be mixed with return air) or easily achievable with the fan controls that are commonly available.
				Resolution: Because it may not be desirable or easily achievable to run the HVAC air handler at a reduced speed during ventilation, this particular requirement will be removed. Note that the fan type shall still be ECM/ICM and variable-speed, or the system must include a controller (e.g., smart cycler) that reduces the ventilation run time by accounting for hours when the HVAC system is heating or cooling the home. As a result, Footnote 17 will be revised to read: “If the whole-house ventilation system utilizes the HVAC air handler, then the fan speed type shall be ECM / ICM and variable speed, or include a controller (e.g., smart cycler) that reduces the ventilation run time by accounting for hours when HVAC system is heating or cooling the home.”
00227	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Addition of Item 1.5 - Verification of HVAC contractor credentials**
				Issue: Partners have noted that the checkbox on the first page of the Inspection Checklists, which requires Raters to verify that the HVAC contractor holds the credentials necessary to complete the HVAC System QI Contractor Checklist, may often be overlooked due to its location. Partners have also asked, in cases where only Section 1 of the HVAC System QI

				Contractor Checklist is required to be completed, must a credentialed HVAC contractor complete this Section?
				Resolution: To ensure that Raters consistently verify that the HVAC contractor holds credentials necessary to complete the HVAC System QI Contractor Checklist, this requirement and associated Footnote will be added as an Item to Section 1. Only a credentialed contractor is permitted to complete Section 6 through 12 of the HVAC System QI Contractor Checklist. In contrast, the builder (or a firm or HERS Rater hired by the builder) or a credentialed contractor (or a firm or HERS Rater hired by the contractor) is permitted to complete Sections 1 through 5 of the HVAC System QI Contractor Checklist. As a result, if any Item in Sections 6 through 12 of the HVAC System QI Contractor Checklist is applicable to the home and, therefore, completed by an HVAC contractor, then the Rater must confirm that the contractor holds the necessary credentials. To clarify this intent, the Footnote associated with the new Item in Section 1 of this Checklist will be revised as follows: "If any Item in Sections 6 through 12 of the HVAC System QI Contractor Checklist is applicable to the home and, therefore, completed by an HVAC contractor, then the Rater must confirm that the contractor holds the necessary credentials. HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this credentialing process and links to H-QUITOs, which maintain lists of credentialed contractors, can be found at www.energystar.gov/newhomesHVAC."
00053	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Footnote 1 – Verification requirements for homes with boilers**
				Issue: Partners have asked who should complete this checklist if a home is equipped with a boiler and radiant floor heating.
				Resolution: The HVAC System Quality Installation Rater Checklist must be completed by the Rater, but in this case many items will be marked "Not Applicable".
00151	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Refinement**	**Footnote 2 - Rater responsibility**
				Issue: A grammatical error was identified in the text of Footnote 2.
				Resolution: To correct this error and to align with the language used in Footnote 1 of the Contractor Checklist, Footnote 2 will be revised to read: "The Rater is only responsible for ensuring that the Contractor has completed the Contractor Checklist in its entirety and verifying the discrete objective parameters referenced in Section 1 of this Checklist, not for assessing the accuracy of the load calculations or field verifications included or for verifying the accuracy of every input on the Contractor Checklist."
00225	**09/10/2012**	**HVAC System**	**Comment**	**Item 1.1 - Manual J, D and S documentation requirements**

		Quality Installation Rater Checklist (Version 3, Rev. 05)		**Issue:** Partners have asked if documentation demonstrating compliance with Manual J, D and S needs to be collected for every certified home, even if multiple certified homes have the same plan and system design.
				Resolution: Per Item 1.1 HVAC System Quality Installation Rater Checklist, the HVAC System Quality Installation Contractor Checklist must be completed in its entirety and collected by the Rater for his or her records, along with documentation on the ventilation system, the full load calculations, the AHRI certificate, and the balancing report. Therefore, the load calculations, which will commonly be completed according to Manual J, must be documented for each certified home. In contrast, the Rater is not required to collect documentation related to Manual D and Manual S. For the documentation related to Manual J, if multiple certified homes have the same plan and HVAC design (and, therefore, the same load calculations documentation would be provided), then the Rater is permitted to choose to keep an individual copy of this documentation for each home or to keep a single copy of this documentation in a central location. In the latter case, the Rater must have a reliable system to link each certified home to the associated documentation.
00054	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 1.2.9 – Sizing heat pumps in cold climates**
				Issue: Partners have asked whether the listed total cooling capacity limits noted in Item 1.2.9 contain exemptions for heat pump systems in cold climates, as these systems are typically sized to the heating load, which can be significantly higher than the cooling load.
				Resolution: ACCA Manual S provides less stringent oversizing limits when the cooling load is substantially smaller than the heating load and adjustable-speed equipment is used. According to Manual S: "The allowable margin of excess capacity will depend on the relative size of the design cooling load and design heating load: • "If the cooling load is substantially larger than the heating load, the limit on excess cooling capacity is identical to the limit that applies to single speed equipment. • "If the cooling load is substantially smaller than the heating load, an absolute limit on the amount of excess cooling capacity is not required because the equipment can be operated at a reduced capacity during the cooling season. However, this does not mean that the amount of excess cooling capacity is irrelevant. In this regard, the designer must make sure the system will provide adequate humidity control during any possible operating condition." Therefore, partners may use variable or dual-speed cooling equipment that does not meet the strict oversizing limits of Item 1.2.9 if the cooling load is substantially smaller than the heating load. In contrast, if the cooling load is substantially larger than the heating load, the same strict

				oversizing limits apply. In that case, Footnote 7 provides some flexibility to select equipment based on available equipment size increments, particularly for multi-speed equipment. Footnote 7 reads: "For cooling systems, the next largest nominal piece of equipment may be used that is available to satisfy the latent and sensible requirements. Single-speed systems generally have OEM nominal size increments of ½ ton. Multi-speed or multi-stage equipment may have OEM nominal size increments of one ton. Therefore, the use of these advanced system types can provide extra flexibility to meet the equipment sizing requirements."
00226	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 05)**	**Change**	**Item 1.2.12 – Rater review of contractor refrigerant testing**
				Issue: Item 7.9 of the HVAC System Quality Installation Contractor checklist defines an allowable subcooling or superheat deviation of ±3 °F and ±5 °F, respectively. However, during the Rater review of the HVAC contractor's refrigerant tests, no such allowable deviation is noted. Item 1.2.12 states "Calculated subcooling (7.1 minus 6.4) or superheat (6.6 minus 7.5) value equals the reported target subcooling (7.3) or superheat (7.7) temperature."
				Resolution: The purpose of this Item is for the Rater to calculate the superheat or subcooling temperature using the values reported by the HVAC contractor and to verify that this temperature is within the allowable deviation from the contractor-reported target value. Item 1.2.12 will be revised as follows: "Calculated subcooling (7.1 minus 6.4) value is within ±3 °F of the reported target temperature (7.3) or calculated superheat (6.6 minus 7.5) value is within ±5 °F of the reported target temperature (7.7)."
00055	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 1.3 – Acceptable documentation for whole-building mechanical ventilation design**
				Issue: Partners have asked whether a manufacturer's instruction sheet or a designer's documentation showing run-time pattern requirements and control locations would meet the intent of Item 1.3, which requires that documentation be attached with the ventilation system type, location, design rate and frequency.
				Resolution: A designer's documentation showing run-time pattern requirements would meet the intent of Item 1.3. A manufacturer's instruction sheet may meet the intent of this requirement if it clearly identifies the ventilation design rate and frequency that has been selected for the rated home. That is to say, mechanical ventilation equipment can be run in multiple ways to meet the ventilation requirements of the ASHRAE standard and it may not be apparent from the instruction sheet alone which strategy has been selected. For example, a bathroom exhaust fan may be run continuously at one rate or intermittently at a higher rate to satisfy the requirement. If the designer indicates on the instruction sheet which ventilation design rate and frequency have been selected, then the intent for this item would be met.
00140	**01/15/2012**	**HVAC System**	**Clarification**	**Section 2 – Whole-house mechanical ventilation system installation**

		Quality Installation Rater Checklist (Version 3, Rev. 04)		**Issue:** Partners have noted that the heading in Section 2, Duct Quality Installation, indicates that the requirements of this Section apply to ventilation ducts. However, some of the Items in this Section do not seem generally applicable to homes in which the only forced-air system is a ventilation system (e.g., homes with hydronic heating systems and no air conditioning). Specifically, Partners have asked the following: 1. Item 2.7 requires the Rater to verify the quantity and location of supply and return duct terminals based on a balancing report from the contractor. However, the Contractor Checklist does not indicate that Section 10 of that Checklist, Air Balancing, applies to ventilation ducts. Therefore, does Item 2.7 apply to such homes? Item 2.8 requires that bedrooms be pressure-balanced. Partners have asked if it is truly EPA's intent to ensure that bedrooms are pressure-balanced in such homes.
				Resolution: The intent of requiring quality duct installation practices for ventilation ducts is to help ensure that ventilation system performance is not compromised by improper installation practices such as kinked, excessive, coiled, compressed, or inadequately supported ductwork. This intent is captured in Items 2.1 through 2.4, which apply to ventilation ducts. Items 2.5 and 2.6 help prevent excessive leakage and mitigate the risk of moisture problems caused by poor duct location and installation and also apply to ventilation ducts. ASHRAE 62.2-2010 does not prescribe room-level duct design requirements for the ventilation system. Therefore, Items 2.7 and 2.8 are not applicable to ventilation ducts and a new footnote will be added to the heading of Section 2 and to these two Items. The new footnote will read as follows: "Items 2.7 and 2.8 do not apply to ventilation ducts."
00338	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Item 2.5 – Insulating panned duct returns**
				Issue: Partners have asked if panned duct returns must be insulated.
				Resolution: As stated in Item 2.5, building cavities used as return ducts must meet the insulation requirements of Item 3.3. Item 3.3 requires that all supply and return ducts located in unconditioned space must be insulated to R-6. Therefore, if panned returns are used and are located in unconditioned space, they must be insulated. If the panned returns are located in conditioned space, duct insulation is recommended, but not required.
00056	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 2.8 – Bedroom door configuration for room pressure-balancing**
				Issue: Item 2.8 requires Raters to verify that bedrooms are pressure-balanced by either calculating the free area of vents and openings to the main body of the home or by testing the pressure differential between the bedroom and the home. Partners have asked whether, when testing the pressure differential, all bedroom doors should be closed or if only the door to the bedroom being tested should be closed. Partners have also asked if, when multiple air handlers are present in the home, all air handlers must be operating during the test or if only

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

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

				when the HVAC system is at 'rough-in', if they so choose. This alternative test option will have no impact on partners that currently test at 'final' and want to continue to do so. For the purposes of this alternative, 'rough-in' will be defined as when the air handler and all ductwork, building cavities used as ductwork, and duct boots are installed. The only components *not* in place at 'rough-in' will be: a) the registers and b) the drywall (or other subsurface) that the duct boots will be sealed to. Additionally, cabinets (e.g., kitchen, bath, multimedia) or ductwork that connect duct boots to toe-kick registers are not required to be in place during the 'rough-in' test. Because the HVAC system at 'rough-in' will not have the drywall or other subsurface in place that the duct boots will be sealed to, a mandatory requirement will be included with this alternative test option for the Rater to visually verify at final inspection that *all* duct boots are sealed to the finished surface. With regards to the leakage limit, the 'rough-in' alternative test option will align with 2012 IECC requirements of 4 CFM per 100 square feet of conditioned floor area. To assist with the transition to this more aggressive 'rough-in' leakage target, leakage of 6 CFM per 100 square feet of conditioned floor area is allowed to be used for homes permitted in 2013. Note that duct leakage testing to outdoors at final will still be required for homes that do not meet the 4 CFM per 100 square feet target at 'rough-in'. The addition of this alternative option is designed to provide partners with a test option that aligns with the time that they can most easily fix problems, at 'rough-in', prior to the installation of the drywall that conceals the ductwork. In addition, the option provides partners with a target that aligns with the more stringent requirements of the 2012 IECC, which may assist them with future code compliance. Last, but not least, the more stringent leakage limit required for this alternative test option will most likely result in final leakage at or below 8 CFM per 100 square feet of conditioned floor area, maintaining the original intent of the program requirements. To reflect these changes, Item 4.1 will be revised as follows: "4.1 Total Rater-measured duct leakage meets one of the following two options: 4.1.1 Rough-in: ≤ 4 CFM25 per 100 sq. ft. of CFA with air handler and all ductwork, building cavities used as ductwork, & duct boots installed. In addition, all duct boots sealed to finished surface, Rater-verified at final. 4.1.2 Final: ≤ 8 CFM25 per 100 sq. ft. of CFA with the air handler and all ductwork, building cavities used as ductwork, duct boots, & register grilles atop the finished surface (e.g., drywall, flooring) installed." Additionally, a new Footnote will be added to 4.1.1: "Cabinets (e.g., kitchen, bath, multimedia) or ductwork that connect duct boots to toe-kick registers are not required to be in place during the 'rough-in' test. *For homes permitted through 12/31/2013:* Homes are permitted to be certified if rough-in leakage is ≤ 6 CFM25 per 100 sq. ft. of CFA with air handler and all ductwork, building cavities used as ductwork, & duct boots

				installed." Finally, the statement in Footnote 17 stating that duct testing is to occur "only after all components of the system have been installed including the air handler, the ductwork, the duct boots, and the register grilles atop the finished surface (e.g., drywall, carpeting, flooring)" will be deleted because relevant guidance is now provided directly in Item 4.1.
00141	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Change**	**Item 4.1 – Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit in Item 4.1 for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: Reducing total duct leakage can improve system efficiency, enhance occupant comfort, and minimize comfort and durability problems associated with pressurizing or depressurizing interstitial cavities in homes. Because of the high total duct leakage typically caused by panning, Item 4.2 prohibits using building cavities as supply or return ducts unless they meet the insulation and leakage requirements of Item 3.2, 3.3, 4.1, and 4.2. In cases where partners cannot meet these items, they must use other duct designs that do meet the minimum insulation levels and maximum leakage thresholds. However, to ease implementation for partners while retaining the value of a duct system with low total leakage compared to standard practice, Item 4.1 will be revised as follows: "Total Rater-measured duct leakage ≤ 8 CFM25 per 100 sq. ft. of conditioned area." Partner feedback indicated that 8 CFM25 of total leakage per 100 sq. ft. of conditioned area is achievable in both large and small homes. Because the total duct leakage threshold will now be the same for all homes, Footnote 16, which addresses duct leakage thresholds for small homes (< 1,200 sq. ft.), will remove the reference to total duct leakage and will only apply to Item 4.1 and not to Item 4.2. In addition, to improve clarity, all exemptions related to duct testing will be merged into this Footnote. Footnote 16 will be revised as follows: "For homes that have < 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area. Testing of duct leakage to the outside can be waived if all ducts & air handling equipment are located within the home's air and thermal barriers AND envelope leakage has been tested to be less than or equal to half of the Prescriptive Path infiltration limit for the Climate Zone where the home is to be built. Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is ≤ 4

				CFM25 per 100 sq. ft. of conditioned floor area, or ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area for homes that have less than 1,200 sq. ft. of conditioned floor area.”
00341	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Item 4.1 – Exemption for ducts in conditioned space**
				Issue: Partners have asked if total duct leakage testing can be waived when ducts are in conditioned space.
				Resolution: Footnote 18 of the HVAC System QI Rater Checklist states: “Testing of duct leakage to the outside can be waived if all ducts & air handling equipment are located within the home’s air and thermal barriers AND envelope leakage has been tested to be less than or equal to half of the Prescriptive Path infiltration limit for the Climate Zone where the home is to be built.” Therefore, if the conditions listed in Footnote 18 are met, testing *duct leakage to the outside* can be waived. However, testing *total duct leakage* is a mandatory requirement for all certified homes, regardless of the home’s envelope leakage or HVAC equipment location.
00342	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 4.1 – Revised duct leakage test methodology for registers atop carpet**
				Issue: Several partners have expressed that they are having difficulty meeting the duct leakage requirement in Item 4.1 when systems include registers atop carpets. Although registers are permitted to be sealed at both the face and the perimeter during the test, many partners have noted that it is difficult to seal these registers in a manner that prevents leakage from occurring between the register and the carpet or between the carpet and the carpet pad.
				Resolution: To remove the unintended challenge of sealing registers atop carpets during duct leakage testing, registers atop carpets will be permitted to be removed and the face of the duct boot temporarily sealed (e.g., with a foam block, by taping the boot to the subfloor) during testing. In such cases, however, the Rater must visually verify that the gap between the boot and subfloor has been durably sealed (e.g. using duct mastic or caulk) to prevent leakage during normal operation, because such leakage will no longer be captured during the test. Note that this change does not apply to a register atop other finished floor materials (such as tile, wood, and laminate), for which the Rater must leave the register in place and seal it per the guidance in Footnote 17. To reflect this change, a Footnote will be added to Item 4.1 that reads as follows: “Registers atop carpets are permitted to be removed and the face of the duct boot temporarily sealed during testing. In such cases, the Rater shall visually verify that the boot has been durably sealed to the subfloor (e.g. using duct mastic or caulk) to prevent leakage during normal operation.”
00142	**01/15/2012**	**HVAC System**	**Comment**	**Item 4.1 & Item 4.2 - Duct Leakage test procedures**

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

		Quality Installation Rater Checklist (Version 3, Rev. 03)		**Issue:** Partners have asked EPA to clarify if drywall mud is an acceptable material for sealing duct boots to floors, walls, and ceilings.
				Resolution: Drywall mud is not designed for this application because it can become brittle and can crack after drying, preventing an airtight seal between the duct boot and the surrounding surface. For this reason, drywall mud is not an acceptable material for the purpose of meeting this item.
00143	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Change**	**Item 4.3 – Duct boot sealing**
				Issue: Partners have asked if duct boots must be sealed to the ceiling per Item 4.3 when the space above the ceiling is within the thermal and pressure boundary of the home. For example, must duct boots be sealed to the ceiling of the first floor if a conditioned second story is above, or if a cathedralized attic is above?
				Resolution: Because Item 4.1 already limits total duct leakage throughout the duct system, Item 4.3 will be removed so that partners can use their judgment to determine when to seal and inspect duct boots. Note that duct boots will often need to be sealed to floors, walls, and ceilings to meet the total duct leakage limit. This change simply removes duct boot sealing as a mandatory requirement for qualification.
00060	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Item 5.1 – Validation of contractor-selected ventilation design rate**
				Issue: Partners have asked how they should verify that the design ventilation rate selected by the contractor and listed in Item 2.11 of the HVAC System Quality Installation Contractor Checklist (Rev. 03) was properly calculated.
				Resolution: Item 5.1 requires that the Rater-verified ventilation rate be within 100-120% of the HVAC Contractor design value. The wording is important, because it's not the Rater's responsibility to determine whether the contractor-reported value is compliant with the ASHRAE 62.2-2010 standard, only that the Rater-measured ventilation rate is within the tolerance of the contractor-reported value. In cases where the Rater is knowledgeable about the ASHRAE standard and believes that the contractor-reported design value is incorrect, the Rater is encouraged to share that observation with the contractor and builder as an educational opportunity.
00144	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Item 5.1 – Whole-house ventilation rate**
				Issue: Item 5.1 requires that the Rater-measured ventilation rate be within 100-120% of the HVAC contractor design value. Partners have asked if this requirement can be met by installing a bath fan with a controller that is marketed to meet ASHARE 62.2-2010 (e.g., with a setting based on the number of bedrooms in the home and the conditioned floor area of the home).

				Resolution: A bath fan combined with a controller that is set to operate the fan according to the run-time requirements of ASHRAE 62.2-2010 can be used to meet the intent of this Item, as long as the system's ventilation rate is measured by the Rater and verified to be 100-120% of the HVAC contractor design value.
00231	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev.05)**	**Comment**	**Item 5.1 – Rater measured ventilation within 100-120% of HVAC contractor design value**
				Issue: Partners have asked if the Rater-measured ventilation rate must be within 100-120% of the HVAC contractor design value or within 100-120% of the ventilation rate required by ASHRAE 62.2-2010.
				Resolution: Item 5.1 states that the Rater-measured ventilation rate is required to be within 100-120% of the ventilation design value. The Rater is not required to verify that the measured ventilation rate is within 100-120% of the minimum rate required by ASHRAE 62.2-2010, though some Raters may wish to verify this as a value-added service.
00061	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Change**	**Item 6.2 – Guidance on cool air flow test in cold weather**
				Issue: This item requires the Rater to assess whether cool air flow is produced when the cooling cycle is energized. EPA has received feedback that the cool air flow test should not be performed below a certain temperature because of the potential for liquid line slugging.
				Resolution: EPA will add a new footnote that provides an exemption for this test when the outdoor temperature is below a specific threshold to prevent possible equipment damage, as follows: "To prevent potential equipment damage, the Rater shall not conduct this test if the outdoor temperature is ≤ 55°F or, if known, below the manufacturer-recommended minimum operating temperature for the cooling cycle. When this occurs, the Rater shall mark 'N/A' on the checklist for this item."
00062	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 6.5 – Labeling ventilation controls**
				Issue: Partners have expressed confusion about whether Item 6.5, "Ventilation controls labeled, unless function is obvious (e.g., bathroom exhaust fan)", requires or does not require labeling of bathroom exhaust fan controls.
				Resolution: EPA intended this requirement to align with the requirement for labeling ventilation controls in ASHRAE 62.2-2010. EPA will revise the requirement to read as follows: "Function of ventilation controls is obvious (e.g., bathroom exhaust fan) or, if not, controls have been labeled."
00063	**07/25/2011**	**HVAC System Quality Installation**	**Change**	**Item 7.2 – Air inlet height requirements for North Carolina**
				Issue: Partners in North Carolina have noted that the ventilation air inlet height requirement is

		Rater Checklist (Version 3, Rev. 03)		significantly greater than historical records of snowfall for this state and would be particularly problematic for homes with HVAC equipment in crawlspaces or basements.
				Resolution: EPA will permit the use of reduced ventilation air inlet heights in North Carolina. The minimum required height in North Carolina for Climate Zone 4 will be reduced from 4 feet to 2 feet and in Climate Zone 5 from 4 feet to 2.5 feet based on historical snowfall data for this state. Note that EPA is evaluating the potential to reduce inlet heights in other regions based upon historical snowfall data.
00064	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Section 8 – Requirements for local mechanical exhaust**
				Issue: Partners have expressed confusion about whether Section 8 requires local mechanical exhaust systems to be installed and meet the requirements of Section 8, or if it simply requires that local mechanical exhaust systems, where installed, meet the requirements of Section 8.
				Resolution: EPA will revise the requirements for Section 8 to read as follows: “In each kitchen and bathroom, a system shall be installed that exhausts directly to the outdoors and meets one of the following Rater-measured airflow standards:”
00065	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Comment**	**Section 8 – Local mechanical exhaust locations**
				Issue: Partners have asked if all kitchen exhaust fans must exhaust to the exterior. Partners have also asked if recirculating (non-vented) above-the-range hood fans meet the intent of the requirements in Section 8.
				Resolution: Each kitchen must have at least one exhaust system that vents to the outdoors. Fans that recirculate air and do not exhaust to the outdoors do not meet the intent of Section 8. For example, a kitchen is permitted to have a recirculating fan above-the-range hood, but to meet the intent of Section 8 the kitchen must also have an exhaust fan (e.g., wall-mounted, ceiling-mounted) that vents directly to the outdoors.
00145	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Section 8 – Whole-house ventilation system location**
				Issue: Partners have asked if a fan in a kitchen or bathroom can be used to meet both the requirement for local mechanical exhaust in Section 8 and the requirement for whole-house ventilation in Section 1 of the HVAC System Quality Installation Contractor Checklist.
				Resolution: Section 1 of the HVAC System Quality Installation Contractor Checklist requires that a whole-house ventilation system that meets ASHRAE 62.2-2010 requirements be installed but does not prescribe a specific system type or location. Therefore, a fan located in a kitchen or bathroom is permitted to provide both local mechanical exhaust and whole-house ventilation if it meets all the requirements of Section 1 of the HVAC System Quality Installation Contractor Checklist and Section 8 of the HVAC System Quality Installation Rater Checklist.
00146	**01/15/2012**	**HVAC System**	**Comment**	**Item 8.1 – Local mechanical exhaust rates**

		Quality Installation Rater Checklist (Version 3, Rev. 04)		**Issue:** Item 8.1 requires that a local mechanical exhaust system be installed in each kitchen that provides either ≥ 5 air changes per hour (ACH) based on kitchen volume, if operating continuously, or ≥ 100 CFM, if operating intermittently. Footnote 28 further clarifies that if the flow rate of an intermittent exhaust fan is less than 5 ACH, based on kitchen volume, then a vented range hood or appliance-range hood combination is required rather than a remote fan that is not integral to the range. Partners have asked how to assess whether an intermittent fan meets the 5 ACH requirement.
				Resolution: The ability of an intermittent fan to meet the 5 ACH requirement is permitted to be assessed using the flow rate that would be produced if the fan was operating continuously for an hour, even if the fan may actually be operated intermittently in the home.
00232	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 8.1 – Intermittent kitchen exhaust fan flow rates**
				Issue: Partners have noted that while Item 8.1 allows any type of intermittent kitchen exhaust fan that provides at least 100 CFM, Footnote 28 includes a more restrictive requirement that if a fan provides less than 5 ACH based on kitchen volume, then it must be a vented range hood or an appliance-range hood combination. Partners have asked that EPA more clearly convey this complex requirement.
				Resolution: To better indicate that there are two performance thresholds that may need to be met, depending on the fan type, the intermittent rate required for Item 8.1 will be revised to read: "≥ 100 CFM and, if not integrated with range, also ≥ 5 ACH based on kitchen volume" Footnote 28 will then be revised to read as follows: "All intermittent kitchen exhaust fans must be capable of exhausting at least 100 CFM. In addition, if the fan is not part of a vented range hood or appliance-range hood combination (i.e., if the fan is not integrated with the range), then it must also be capable of exhausting ≥ 5 ACH, based on the kitchen volume. Also, for intermittent kitchen exhaust fans that are integrated with microwaves, a rated air flow rate ≥ 200 CFM may be used in lieu of measuring the actual air flow rate."
00343	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 8.1 – Alternative kitchen exhaust rate for Passive House (PHIUS+) certified homes**
				Issue: Partners have noted the partnership between the Passive House Institute's Passive House (PHIUS) program and DOE's Challenge Home program, and DOE's requirement for a home to be ENERGY STAR certified as a prerequisite to being certified under the Challenge Home program. As a result of these partnerships, PHIUS+ certified homes are also eligible to be ENERGY STAR certified. Information on PHIUS+ certification can be viewed here: http://www.passivehouse.us/passiveHouse/PHIUSServicesPHIUSPlusCertification.html. With that said, PHIUS+ certified homes have a mandatory infiltration limit that is extremely low.

				For this reason, builders of these homes often use a continuously running balanced ventilation system to meet local mechanical exhaust requirements for kitchens. In such homes, partners have expressed difficulty complying with the ENERGY STAR program's requirement to meet the ASHRAE 62.2 local mechanical exhaust flow rate of 5 kitchen air changes per hour for continuously running fans.
				Resolution: To avoid discouraging participation of PHIUS+ projects in the DOE Challenge Home or ENERGY STAR certified homes program, an alternative kitchen exhaust rate based on the requirements of the 2009 IRC will be permitted to be used for PHIUS+ certified homes. This alternative will remain in effect while DOE works to develop an ASHRAE 62.2-compliant solution optimized for very low-load homes. A new Footnote will be added to Item 8.1 that reads as follows: "As an alternative to Item 8.1, homes that are PHIUS+ certified are permitted to use a continuous kitchen exhaust rate of 25 CFM per 2009 IRC Table M1507.3."
00344	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 8.1 – Alternative compliance options for kitchen exhaust fan airflow rate**
				Issue: Item 8.1 requires, in part, that in each kitchen a system shall be installed that exhausts directly to the outdoors and that the airflow be verified by the Rater. Partners have expressed the following challenges complying with this Item: • Among standalone fans that are not integrated with the range, few models exist that are rated for kitchen use (i.e., to handle grease). Those that are rated for kitchen use do not fit in conventionally framed floors. Fans not rated for kitchen use are not permitted to be installed near the range, creating layout constraints. As a result, partners often need time to make architectural changes that accommodate the addition of kitchen exhaust fans. • Measuring the airflow of a kitchen exhaust fan can be challenging due to the design of the range hood or because it is integrated with a microwave. In some cases, the airflow can be measured at the termination of the exhaust duct, but in other cases the termination is not accessible due to height restrictions. Some exhaust fans, particularly those integrated with microwaves, are not rated for air flow, making it difficult to determine during the design phase whether the fan will meet Item 8.1.
				Resolution: In addition to the current compliance option for Item 8.1, which requires the Rater to measure the kitchen exhaust fan airflow and ensure that it meets or exceeds the minimum required flow rate, two compliance options will be added to assist partners. First, the prescriptive duct sizing requirements in Section 5.4 and Table 5.3 of ASHRAE 62.2-2010 will be permitted to be used to comply with Item 8.1. Partners using this compliance option will not be required to measure the exhaust fan airflow rate. Instead, the Rater will verify that the prescriptive duct sizing requirements from ASHRAE 62.2-2010 have been met, as

				determined by the rated fan airflow, duct type (i.e., flex or smooth), duct diameter, and maximum allowable duct length. Second, though not fully aligned with ASHRAE 62.2-2010, a prescriptive duct sizing requirement will be permitted to be used to comply with Item 8.1 for fans without a rated airflow. However, because the airflow of the fan is not rated, and therefore unknown, more restrictive requirements will be imposed - smooth round duct with a diameter of 6 in. or greater will be required to be used, coupled with a rectangular to round duct transition as needed. Partners using this compliance option will not be required to measure the exhaust fan airflow rate. Instead, the Rater will verify that a smooth round duct with a diameter ≥ 6 in. has been used, with rectangular to round transitions as needed. EPA will provide a one page document that describes this policy in greater detail at www.energystar.gov/newhomesresources. To reflect these changes and to provide sufficient time for partners to comply, a new Footnote will be added to Item 8.1 that reads as follows: "*For homes permitted through 01/01/2014:* Homes are permitted to be certified without enforcement of this Item to provide partners with additional time to integrate this feature into their homes. *For homes permitted on or after 01/01/2014:* Homes shall meet this Item. Alternatively, the prescriptive duct sizing requirements in Table 5.3 of ASHRAE 62.2-2010 are permitted to be used for kitchen exhaust fans based upon the rated airflow of the fan at 0.25 IWC. If the rated airflow is unknown, ≥ 6 in. smooth duct shall be used, with a rectangular to round duct transition as needed. Guidance to assist partners with these alternatives is available at www.energystar.gov/newhomesresources." As a result of these new alternatives, the option for intermittent kitchen exhaust fans that are integrated with microwaves to not be tested for airflow when they have a rated airflow rate ≥ 200 CFM will be removed from Footnote 29.
00233	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 05)**	**Comment**	**Item 8.2 – Bathrooms with only a sink and toilet are not required to have an exhaust fan**
				Issue: Partners have asked if a local mechanical exhaust fan is required in a bathroom containing only a sink and a toilet.
				Resolution: Footnote 25 states that "Per ASHRAE 62.2-2010, a bathroom is any room containing a bathtub, shower, spa, or similar source of moisture." Sinks and toilets are not considered significant sources of moisture; therefore, bathrooms containing only a sink and a toilet are not required to comply with Item 8.2.
00066	**07/25/2011**	**HVAC System Quality Installation**	**Comment**	**Section 9 – Static pressure test conditions**
				Issue: Partners have asked whether there are any specific conditions or procedures for static

		Rater Checklist (Version 3, Rev. 03)		pressure readings in the supply and return ducts.
				Resolution: The HVAC system shall be in operation, and the supply and return duct static pressures shall be measured at the locations noted in Footnote 21. EPA is considering whether to develop a more formal test procedure for this requirement.
00067	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 9.1 – Definition of remote-mounted fans**
				Issue: Partners have asked EPA to clarify whether a remote-mounted fan is exempt from the sound rating requirement based on its location alone or if the fan must also have ≥ 4 ft ductwork between the fan and intake grills.
				Resolution: To improve the clarity of the definition for a remote-mounted fan, the portion of the associated footnote that defines this term will be clarified as follows: "Fans exempted from this requirement include HVAC air handlers and remote-mounted fans. To be considered for this exemption, a remote-mounted fan must be mounted outside the habitable spaces, bathrooms, toilets, and hallways and there shall be ≥ 4 ft. ductwork between the fan and intake grill. Per ASHRAE 62.2-2010, habitable spaces are intended for continual human occupancy; such space generally includes areas used for living, sleeping, dining, and cooking but does not generally include bathrooms, toilets, hallways, storage areas, closets, or utility rooms."
00345	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Item 9.1 – Exemption from kitchen exhaust fan sone rating**
				Issue: Item 9.1 requires, in part, that an intermittent exhaust fan be rated at ≤ 3 sones by the manufacturer when producing no less than the minimum airflow required by Section 8. Partners have reported difficulty finding kitchen exhaust fans that carry sone ratings, particularly for over-the-range exhaust fan units that are integrated with microwaves.
				Resolution: Because the availability of kitchen exhaust fans with sound ratings is still limited, EPA will recommend, but not require, that kitchen exhaust fans meet Item 9.1 for intermittent fans or Item 9.2 for continuous fans. Note that no change is being made to the sound requirements for bath fans or other ventilation or exhaust fans. To reflect this change, the heading of Section 9 will be revised to read: "Ventilation & Exhaust Fan Ratings (Exemptions for Kitchen, HVAC, and Remote-Mounted Fans)." The first sentence of Footnote 31 will be revised to read as follows: "Fans exempted from this requirement include kitchen exhaust fans, HVAC air handler fans, and remote-mounted fans."
00147	**01/15/2012**	**HVAC System Quality Installation Rater Checklist**	**Clarification**	**Item 9.1 & 9.2 – Sound limits for multispeed local mechanical exhaust fans**
				Issue: Partners have asked at which speed fans must meet the sone limits in Items 9.1 and 9.2. Partners have also expressed difficulty finding multispeed ventilation and exhaust fans that

		(Version 3, Rev. 04)		meet those limits.
				Resolution: Multispeed fans must meet the sone limits of Items 9.1 or 9.2 when producing no less than the minimum airflow rate required by Section 8. In order to clarify this requirement, Item 9.1 will be revised as follows: "Intermittent supply and exhaust fans rated at ≤ 3 sones by mfr. when producing no less than the minimum airflow rate required by Section 8 of this Checklist, unless rated flow ≥ 400 CFM." Additionally, Item 9.2 will be revised as follows: "Continuous supply & exhaust fans rated at ≤ 1 sone by mfr. when producing no less than the minimum airflow required by Section 8 of this Checklist." All ENERGY STAR qualified bathroom fans (and range hoods) have sound ratings of 3 sones or less and, therefore, may be good candidates to meet Item 9.1. A list of qualified ventilation fans and retail locations has been posted in the "Fans, Ventilating Resources" column at the right of the page at http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=VF, which is also accessible by visiting www.energystar.gov, clicking on "Find ENERGY STAR Products" in the "Products" box, and then clicking on "Fans, Ventilating" under the "Heating & Cooling" heading.
00346	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Comment**	**Items 9.1 and 9.2 – Field-measured sone level not allowed in lieu of manufacturer rating**
				Issue: Partners have asked if they are permitted to measure the sone level of installed exhaust fans in the field, in lieu of using manufacturer sone ratings, to meet Item 9.1 and 9.2.
				Resolution: Manufacturer sone ratings are conducted under standardized test conditions that are not easily duplicated in the field. Because of this, field measurements are not permitted to be used in lieu of manufacturer sone ratings to meet Items 9.1 and 9.2.
00068	**07/25/2011**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 10.1 – Test requirements for naturally drafted combustion appliances**
				Issue: Partners have asked which specific combustion safety tests are required to be performed in homes with a natural draft combustion appliance inside the pressure boundary. Also, EPA has determined that the phrase "atmospherically vented" is better expressed as "natural draft" or "naturally drafted".
				Resolution: For improved clarity, EPA will replace the phrase "atmospherically vented equipment" with the phrase "naturally drafted equipment" and add a definition to Footnote 27, as follows: "Per the 2009 International Mechanical Code, a direct-vent appliance is one that is constructed and installed so that all air for combustion is derived from the outdoor atmosphere and all flue gases are discharged to the outside atmosphere; a mechanical draft system is a venting system designed to remove flue or vent gases by mechanical means consisting of an induced draft portion under non-positive static pressure or a forced draft portion under positive static pressure; and a natural draft system is a venting system designed to remove flue or vent gases

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

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

				Resolution: EPA will explicitly describe the test procedure to be executed for unvented combustion appliances. Item 10.3 will read as follows: "If unvented combustion appliances other than cooking ranges are located inside the home's pressure boundary, the Rater has operated the appliance for at least 10 minutes and verified that the ambient CO level does not exceed 35 ppm."
00348	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 10.3 – Applicability of CO testing to cooking ovens**
				Issue: Partners have asked if cooking ovens are included in the unvented gas appliances that must be tested for CO levels, per Item 10.3.
				Resolution: The intent of Item 10.3 is to ensure that unvented combustion appliances located within the home's pressure boundary can be operated safely, as verified through a combustion safety test. This Item was not intended to include cooking appliances in the kitchen, where local mechanical exhaust is required per Item 8.1 of this Checklist. Therefore, cooking ranges (also known as cooktops and cooking stoves) and ovens are exempted from the requirement to conduct a combustion safety test. To clarify this intent, Item 10.3 will be revised to read: "If unvented combustion appliances other than cooking ranges or ovens are located inside the home's pressure boundary, the Rater has operated the appliance for at least 10 minutes and verified that the ambient CO level does not exceed 35 ppm."
00150	**01/15/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)**	**Comment**	**Rater Company Name field and Date Checklist Inspected field**
				Issue: Partners have asked if the Rater Company Name and the Date Checklist Inspected fields are required to be completed for every home.
				Resolution: The Rater company name and date that the Checklist was inspected must be documented each time the Checklist is filled out.
00349	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Change**	**Footnote 1 – Alignment with Indoor airPLUS language**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. In addition, it now clearly indicates what is required above and beyond ENERGY STAR certification to earn the Indoor airPLUS label. Therefore, the reference to the use of this Checklist as a means to demonstrate compliance with Indoor airPLUS program requirements is no longer appropriate.
				Resolution: Because EPA's Indoor airPLUS program requires ENERGY STAR Certification and now clearly indicates what is required above and beyond these requirements to earn the Indoor airPLUS label, the following sentence will be removed from Footnote 1: "This Checklist with supporting documents may also be used to demonstrate compliance with

				Indoor airPLUS specifications 4.1, 4.2, 4.5, 4.6, and 7.1.”
00350	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Clarification**	**Footnote 3 – Expiring exemption for deviation from ACCA Manual J design temperatures**
				Issue: Partners have noted that Footnote 3 contains an exemption allowing up to a 5 degree deviation from ACCA Manual J design temperatures that only applied to homes with a final inspection through 12/31/2012. In addition, partners have noted that some of the guidance in this exemption, related to house plans with multiple configurations, is still applicable.
				Resolution: Because the exemption allowing up to a 5 degree deviation from ACCA Manual J design temperatures is not applicable to any home with a final inspection date on or after 01/01/2013, this exemption will be removed from Footnote 3. The remaining guidance related to design temperatures will be moved to Footnote 4, which already discusses the design location. The guidance related to house plans with multiple configurations is still applicable and will be retained in Footnote 3. Footnote 3 will be revised as follows: “For each house plan with multiple configurations (e.g., orientations, elevations, options), the Rater shall confirm that the parameters listed in Items 1.2.2 to 1.2.6 are aligned with either: the rated home or with the plans for the configuration used to calculate the loads, as provided by the contractor.”
00351	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Refinement**	**Footnote 14 – Expiring exemption for homes that don’t meet pressure balancing req.**
				Issue: Partners have noted that Footnote 14 contains an exemption allowing homes to be certified without meeting the bedroom pressure-balancing requirements of Item 2.8, which only applied to homes with a final inspection through 12/31/2012.
				Resolution: Because the exemption allowing homes to be certified without meeting the bedroom pressure-balancing requirements of Item 2.8 is not applicable to any home with a final inspection date on or after 01/01/2013, this exemption will be removed and Footnote 14 will be deleted.
00235	**09/10/2012**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev.05)**	**Comment**	**Footnote 17 – No exemption provided for total duct leakage test**
				Issue: Partners have asked if all duct testing is waived in homes where the ducts & air handling equipment are located within the home’s air and thermal barriers and the envelope leakage has been tested to be less than or equal to half of the Prescriptive Path infiltration limit for the Climate Zone where the home is built.
				Resolution: Footnote 17 states that “Testing of duct leakage to the outside can be waived if all ducts & air handling equipment are located within the home’s air and thermal barriers AND envelope leakage has been tested to be less than or equal to half of the Prescriptive Path infiltration limit for the Climate Zone where the home is to be built.” Therefore, if the conditions listed in Footnote 17 are met, testing *duct leakage to the outside* is permitted to be waived. However, testing *total duct leakage* is a mandatory requirement for

				ENERGY STAR certified homes, regardless of the home's envelope leakage or ducts & air handling equipment location.
00352	**06/01/2013**	**HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)**	**Refinement**	**Footnote 18 - Inconsistency in alternative duct leakage allowance for small homes**
				Issue: Partners have note that Footnote 18 provides an alternative duct leakage allowance for homes ≤ 1,200 sq. ft. However, the last sentence of this Footnote inadvertently indicates that this allowance only applies to homes "less than 1,200 sq. ft."
				Resolution: To be consistent, and avoid the exclusion of homes that are equal to 1,200 sq. ft. from this alternative duct leakage allowance, the last sentence of Footnote 18 will be revised as follows: "Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is ≤ 4 CFM25 per 100 sq. ft. of conditioned floor area, or ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area for homes that have ≤ 1,200 sq. ft. of conditioned floor area."
00152	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Comment**	**Use of "Must Correct" column**
				Issue: Partners have asked when an item should be designated as "Must Correct".
				Resolution: An item must be marked as "Must Correct" when it has been inspected and does not meet the intent of that item.
00157	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Refinement**	**Footnote 2 - Rater verification of Checklist**
				Issue: Partners have asked EPA to clarify language related to Raters' responsibilities when verifying the Water Management System Builder Checklist.
				Resolution: To better convey the policy intent and align with the language used elsewhere related to Raters' responsibilities, Footnote 2 will be revised to read: "Upon completion, the builder shall return the Checklist to the Rater for review. Alternatively, at the discretion of the builder and Rater, the Rater may verify any item on this Checklist. When this occurs, the Rater shall check the box of the verified items in the Rater Verified column. The Rater is only responsible for ensuring that the builder has completed the Builder Checklist in its entirety and for verifying the items that are checked in the Rater Verified column (if any). The Rater is not responsible for assessing the accuracy of the field verifications for items in this Checklist that are not checked in the Rater Verified column. Instead, it is the builder's exclusive responsibility to ensure the design and installation comply with the Builder Checklist."
00353	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Comment**	**Item 1.1 – Balconies are recommended, but not required, to be sloped**
				Issue: Partners have asked if balconies are required to comply with the sloping requirements of Item 1.1
				Resolution: Item 1.1 requires that "patio slabs, porch slabs, walks, and driveways" be sloped

				away from the home. Because balconies are not included in this list, they are not required to meet this requirement. While not required, EPA does recommend sloping balconies away from the home, where possible, to improve the durability of the dwelling.
00287	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 1.1 & Item 1.2, Footnote 4 - Use of swales and drains**
				Issue: Footnote 4 requires homes to use swales or drains to remove water from the site where setbacks limit space to less than 10 feet. Partners have asked if the same alternative is permitted to be used even if space is not limited by setbacks.
				Resolution: Drains and swales are an acceptable alternative to proper site sloping regardless of whether setbacks limit space to less than 10 ft. To clarify this intent, Footnote 4 will be revised as follows: "Swales or drains designed to carry water from foundation are permitted to be provided as an alternative to the slope requirements for any home, and shall be provided for a home where setbacks limit space to less than 10 ft…."
00071	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Comment**	**Footnote 4, 5, and 11 – Site-level versus community-level soil reports**
				Issue: Partners have asked if soil reports performed for the Water Management System Builder Checklist are valid for a single home or an entire community.
				Resolution: The certified hydrologist, soil scientist, or engineer should be the one to determine whether their evaluation is applicable to a single site or to an entire community. Ultimately, the reported soil conditions must be valid for each home qualified. For example, if the soil expert determines that he/she can evaluate the soil conditions across multiple lots in one visit, then only a single assessment will be needed. Conversely, if the soil expert determines that he/she can only assess the soil conditions for a single lot at a time, then multiple assessments will be needed.
00072	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Change**	**Item 1.2 – Alternative to Tamping Back-Fill**
				Issue: Some partners have indicated that rather than tamping back-fill to prevent settling, they schedule a site visit after the close of the home to evaluate settling conditions, provide in-fill as needed, and complete final grading. They have requested that EPA permit this process be used to satisfy the intent of Item 1.2.
				Resolution: EPA will permit this process to be used to meet the intent of Item 1.2. Item 1.2 will be revised as follows: "Back-fill has been tamped and final grade sloped $\geq$ 0.5 in. per ft. away from home for $\geq$ 10 ft. See footnote for alternatives." The accompanying footnote will be revised as follows: "Where setbacks limit space to less than 10 ft., swales or drains designed to carry water from foundation shall be provided. Also, tamping of back-fill is not required if either: proper drainage can be achieved using non-settling

				compact soils, as determined by a certified hydrologist, soil scientist, or engineer; OR, the builder has scheduled a site visit to provide in-fill and final grading after settling has occurred (e.g., after the first rainy season)."
00073	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Change**	**Item 1.3 – Drainage layer under slabs**
				Issue: Several builders have expressed dissatisfaction with Item 1.3. Specifically, some builders are reluctant to install the layer of aggregate or sand with geotextile matting because they claim it adds additional cost to the home without providing any benefit. Separately, partners have offered the feedback that radon mitigation systems that do not include polyethylene sheeting can be effective, but that EPA's requirement for polyethylene sheeting would prevent homes with such systems from qualifying.
				Resolution: The primary purpose of the layer of aggregate or sand with geotextile matting is to protect the slab from frost heave, which can occur when water freezes in the soil beneath the slab and expands. However, there is no definitive language in the Residential Building Code that requires a drainage layer beneath all slabs. Furthermore, there are many alternative building practices employed around the country that do not rely on a drainage layer. Therefore, EPA will remove the explicit requirement for a layer of aggregate or sand with geotextile matting. The layer of polyethylene sheeting remains a mandatory requirement, except in dry climates where water intrusion to the slab is not a major concern, because it provides a capillary break beneath the slab. To accommodate more diverse building practices, Item 1.3 will be revised to read as follows: "Capillary break beneath all slabs (e.g., slab on grade, basement slab) except crawlspace slabs using ≥ 6 mil polyethylene sheeting lapped 6-12 in. or ≥ 1" extruded polystyrene insulation with taped joints.[5]" Additionally, Footnote 5 will be revised to read: "5. Polyethylene sheeting is not required in Dry (B) climates as shown in 2009 IECC Figure 301.1 and Table 301.1. Polyethylene sheeting is also not required for raised pier foundations with no walls. To earn the ENERGY STAR, EPA recommends, but does not require, that radon-resistant features be included in homes built in EPA Radon Zones 1, 2 and 3. For more information, see www.epa.gov/indoorairplus."
00153	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Comment**	**Item 1.3 – Capillary break beneath slabs for gut rehabs**
				Issue: Partners have asked if gut rehab projects can meet the intent of Item 1.3, which requires a capillary break beneath all slabs except for crawlspace slabs, by installing a vapor barrier on top of a slab.
				Resolution: Historically, EPA has allowed existing homes to earn the ENERGY STAR if all

				requirements of the guidelines have been met. This policy has not changed, though EPA does recognize that it will be more challenging for existing homes to meet all requirements of the guidelines under Version 3 of the program. In the future, EPA may identify the most challenging items and develop alternate details that meet the same intent, thereby allowing existing homes to more easily qualify. With regards to Item 1.3, one alternate that may be used to meet the intent of this item is to construct a rat slab. This building technique calls for the builder to install a layer of polyethylene sheeting on top of an existing slab and then to pour a thin slab that is approximately 2 inches thick over the polyethylene sheeting. This secondary rat slab improves foundation assembly durability by providing a capillary break and protecting the polyethylene sheeting from tearing. For more information about rat slabs, please refer to guidance provided on EPA's Indoor airPLUS website at the following link: http://www.epa.gov/indoorairplus/technical/moisture/1_2.html.
00288	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Item 1.3 and 1.4 - Capillary break beneath existing slabs** **Issue:** Partners certifying existing homes have expressed concern that it is not feasible to remove slabs to place a capillary break beneath, even for a gut rehabilitation **Resolution:** The capillary break beneath a slab prevents water from wicking up from the ground below. To meet the intent of this requirement, existing homes will be permitted to install a sealed and continuous capillary break above the slab that is either a Class I or Class II Vapor Retarder. Some methods for achieving this intent include: • Applying a permanent and protected Class 1 Vapor Retarder that provides drainage space (e.g.an air gap membrane); OR • Applying a permanent and protected layer of extruded polystyrene insulation with taped joints or equivalent Class II Vapor Retarder system; OR • Applying a surface-applied crystalline water-proofing treatment: OR • Applying an epoxy that is a Class I Vapor Retarder. To prevent wear and tear in the capillary break over time, in occupiable spaces this capillary break must be durable to withstand occupant use or be protected with a durable floor surface. To prevent damage from moisture in the slab, Class I Vapor Retarders are not permitted to be installed on the interior side of air permeable insulation or other materials that are prone to moisture damage. A new Footnote will be added to this Item that reads as follows: "For an existing slab (e.g., in a home undergoing a gut rehabilitation), in lieu of a capillary break beneath the slab, a continuous and sealed Class I or Class II Vapor Retarder (per Footnote 6) is permitted to be installed on top of the entire slab. In such cases, up to 10% of the slab surface is permitted to be exempted from this requirement (e.g., for sill plates). In

				addition, for existing slabs in occupiable space, the Vapor Retarder shall be, or shall be protected by, a durable floor surface. If Class I Vapor Retarders are installed, they shall not be installed on the interior side of air permeable insulation or materials prone to moisture damage."
00289	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Comment**	**Item 1.4.1 - Location of capillary break**
				Issue: Partners have asked if Item 1.4.1 only allows a capillary break to be placed under a structural slab or if a capillary break is permitted to be placed beneath a non-structural "rat slab" in a crawlspace to meet the intent of this Item.
				Resolution: A capillary break may be placed under any slab, even non-structural "rat slabs."
00074	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Comment**	**Item 1.4.2 – Fastening options for polyethylene sheeting on crawlspace floors**
				Issue: Partners have asked whether polyethylene sheeting on the floor of a crawlspace is required to be sealed at the edges with tape or mastic.
				Resolution: The polyethylene sheeting installed on the crawlspace floor is not required to be sealed with tape or mastic at the edges. However, the sheeting is required to be lapped 6-12 inches in addition to being either lapped up each wall enough to be fastened or secured in the ground at the perimeter using stakes.
00236	**09/10/2012**	**Water Management System Builder Checklist (Version 3, Rev. 5)**	**Comment**	**Item 1.5 – Alternatives to foundation damproofing**
				Issue: Partners have asked whether sheet drains (e.g., DELTA DRAIN) can be used to meet the intent of Item 1.5. As defined by ICC-ES AC 243, Acceptance Criteria for Composite Foundation Drainage Systems, a "sheet drain" is a type of composite foundation drainage system (i.e., a prefabricated geocomposite drain) with a standard 4-foot width that is installed as sheets over the entire face of a foundation wall. The sheet drains must be interconnected with soil strip drains to provide a continuous water flow that discharges into an approved drainage system.
				Resolution: Sheet drains and, more generally, composite foundation drainage systems, are primarily intended to provide foundation drainage, not foundation dampproofing. For example, the installation instructions for DELTA DRAIN do not say that the product can be used in place of dampproofing and instead note that, "It is typically used in conjunction with liquid or sheet-applied waterproofing." Sheet drains and, more generally, composite foundation drainage systems shall not be used to meet the intent of Item 1.5.
00354	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 1.5 – Applicability to slabs on grade and vented crawlspace foundations**
				Issue: Partners have asked if Item 1.5 is applicable to stem walls that support slabs on grade. Additionally, partners have asked if below-grade walls of vented crawlspaces must meet the requirements of Item 1.5.

				Resolution: Item 1.5 is intended to prevent the intrusion of moisture from the soil through the below-grade wall and into adjacent space in the house. Therefore, Item 1.5 is not required for stem walls supporting slabs on grade, nor is it required for below-grade walls of vented crawlspaces. This is because there is no space in the house adjacent to these below-grade walls. To clarify this intent, Item 1.5 will be revised to read: "Exterior surface of below-grade walls of basements & unvented crawlspaces finished as follows…"
00290	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Item 1.5 - Finishing of exterior surface of existing below-grade walls**
				Issue: Partners certifying existing homes have expressed concern that the exterior surface of foundation walls are already below grade and that it will not be feasible to excavate around the home, clean the walls, apply the exterior coating, and back-fill the excavated areas.
				Resolution: The intent of this Item is to protect the home from damage caused by moisture in the ground. Water has the potential to migrate through below-grade walls and create durability problems in the wall assembly and reduce indoor air quality in the home. For foundation walls not framed with wood, existing home projects can meet this same intent by managing the water that comes through the walls with an interior drainage system. Note that when an uneven fieldstone or granite stone foundation exists, care must be taken to specify construction details and materials that insure an effective installation of drainage planes and capillary breaks against these uneven wall surfaces. For homes in soils that require a foundation drain, a system comprised of a drainage plane, capillary break, Class I Vapor Retarder, and air barrier that leads into the foundation drainage system is required. This system will allow water vapor and liquid to come through the wall and be directed into the drain, but otherwise block the water vapor and liquid from migrating into the basement space or crawlspace. This is permitted to be met with one or more materials such as the combination of spacer mesh and sealed foil-faced polyisocyanurate foam or a fully-sealed air gap membrane. For homes in soils that don't require a foundation drain, a continuous capillary break and Class I Vapor Retarder adhered directly to the wall is required. This system will block the water vapor and liquid at the surface of the wall. To simplify the ability to reference the damp-proofing and waterproofing requirements for various wall types, the bullets in Item 1.5 will be revised to "a)" and "b)". To ensure that a damp-proof coating is applied to all masonry and concrete wall types and not just a subset of specified wall types, Item 1.5a will be revised as follows: "For masonry and concrete walls (e.g., poured concrete, concrete masonry units, insulated concrete forms) finish with damp-proofing coating."

				To clarify this alternative compliance pathway for existing homes, a Footnote will be added to Item 1.5a that reads as follows: "The interior surface of existing below-grade walls (e.g., in a home undergoing a gut rehabilitation) listed in Item 1.5a are permitted to be finished as follows: • Install a continuous and sealed drainage plane, capillary break, Class I Vapor Retarder (per Footnote 6) and air barrier that terminates into a foundation drainage system as specified in Item 1.8; OR • If a drain tile is not required as specified in Footnote 7, adhere a capillary break and Class I Vapor Retarder (per Footnote 6) directly to the wall with the edges taped/sealed to make it continuous. Note that no alternative compliance option is provided for existing below-grade wood-framed walls."
00237	**09/10/2012**	**Water Management System Builder Checklist (Version 3, Rev. 5)**	**Clarification**	**Item 1.8 – Alternative to using a drain tile with fabric filter**
				Issue: Partners have asked if sheet drains may be used to meet the intent of Item 1.8. As defined by ICC-ES AC 243, Acceptance Criteria for Composite Foundation Drainage Systems, a sheet drain is a type of composite foundation drainage system (i.e., a prefabricated geocomposite drain) with a standard 4-foot width that is installed as sheets over the entire face of a foundation wall. The sheet drains must be interconnected with soil strip drains to provide a continuous water flow that discharges into an approved drainage system. Partners have also noted that several requirements of Item 1.8 are only contained in the associated Footnote, Footnote 7, and should be relocated into the Checklist Item to avoid the potential for these requirements to be overlooked.
				Resolution: Composite Foundation Drainage Systems (CFDS), including soil strip drains and sheet drains connected to soil strip drains, that have been evaluated by ICC-ES according to AC 243 are permitted to be used to meet the intent of Item 1.8. Note that sheet drains must be integrated with soil strip drains or another ICC-ES evaluated perimeter drainage system to be eligible for use. Sheet drains by themselves do not fulfill the criteria of AC 243 and cannot be used to meet the intent of Item 1.8. To reflect this intent and to clarify the program requirements, Item 1.8 will be revised as follows: "Drain tile installed at the footings of basement and crawlspace walls, with the top of the drain tile pipe below the bottom of the concrete slab or crawlspace floor. Drain tile surrounded with ≥ 6 in. of ½ to ¾ in. washed or clean gravel and with gravel layer fully wrapped with fabric cloth. Drain tile level or sloped to discharge to outside grade (daylight) or to a sump pump." Footnote 7 will be revised as follows: "Alternatively, either a drain tile that is pre-wrapped with a fabric filter or a Composite

				Foundation Drainage System (CFDS) that has been evaluated by ICC-ES according to AC 243 are permitted to be used to meet this Item. Note that the CFDS must include a soil strip drain or another ICC-ES evaluated perimeter drainage system to be eligible for use.”
00238	**09/10/2012**	**Water Management System Builder Checklist (Version 3, Rev. 5)**	**Change**	**Item 1.8 – Foundation drainage exemption**
				Issue: Partners have asked EPA to clarify whether Item 1.8 applies to crawlspace foundations in areas with Group I (i.e., free-draining) soils. They have noted that Group I soils can effectively drain water away from the footings of foundation walls, thereby meeting the same intent as the installation of a drain tile. Furthermore, they note that Section R405 of the 2009 IRC recognizes this alternative, stating that “A drainage system is not required when the foundation is installed on well-drained ground or sand-gravel mixture soils according to the Unified Soil Classification System, Group I Soils, as detailed in Table R405.1.”
				Resolution: The intent of Item 1.8 is to ensure water is transported away from the footings of foundation walls. Crawlspace foundations installed in Group I soils will meet this same intent without the installation of a drain tile. Therefore, an exemption to Item 1.8 will be added to the end of Footnote 7, as follows: “Additionally, a drain tile is not required when a certified hydrologist, soil scientist, or engineer has determined that a crawlspace foundation is installed in Group I Soils (i.e. well-drained ground or sand-gravel mixture soils), as defined by 2009 IRC Table R405.1.”
00291	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Item 1.8 – Required location of drain tile and applicability to existing homes**
				Issue: Partners certifying new homes have asked if a drain tile installed on the interior side of footings would meet the intent of this Item. Additionally, partners certifying existing homes have expressed concern that compliance with this Item would require excavation around the foundation and is not feasible.
				Resolution: The intent of this Item is to prevent water from collecting at the bottom of foundation walls. The accumulation of water increases hydrostatic pressure and accumulation is likely to increase with increasing depth below grade. As hydrostatic pressure increases, an increased force is applied to the foundation, which could lead to damage or to moisture migration through the wall. Drain tile, or an equivalent system, is required to be installed to transport water away from the foundation, thereby minimizing accumulation and hydrostatic pressure. In new construction, installation of the drain tile on the exterior is anticipated to be no more difficult than on the interior. Because of this and the fact that the exterior location is ideal, the drain tile is required to be installed on the exterior in new construction. Exceeding these minimum requirements by including a drain tile at both the exterior and interior of the footing would also be permitted. In existing homes (e.g., undergoing a gut rehabilitation), installation on the interior is generally

				less costly, while still providing substantively equivalent performance when coupled with a continuous and sealed drainage plane, capillary break, Class I Vapor Retarder, and air barrier that terminates into the foundation drainage system. In addition, existing homes with a basement foundation installed in Group 1 soils are exempt from installing this Item. To clarify that new homes are required to have a drain tile on the exterior side of footings, the beginning of Item 1.8 will be revised as follows: "Drain tile installed at the exterior side of footings of basement and crawlspace walls…" To clarify that a drainage system is permitted to be installed on the interior side of existing footings (e.g., in homes undergoing a gut rehabilitation), the end of Footnote 7 will be revised as follows: "In an existing home (e.g, in a home undergoing a gut rehabilitation) the installation of a drain tile that is only on the interior side of the footings is permitted. Additionally, a drain tile is not required when a certified hydrologist, soil scientist, or engineer has determined that a crawlspace foundation, or an existing basement foundation (e.g., in a home undergoing a gut rehabilitation), is installed in Group I Soils (i.e. well-drained ground or sand-gravel mixture soils), as defined by 2009 IRC Table R405.1."
00075	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Comment**	**Item 2.1 – Flashing at bottom of exterior walls**
				Issue: Partners have expressed concern about the difficulty of including flashing at the bottom of wood-framed walls over crawl spaces and slabs where the vinyl siding hangs below the bottom plate and sheathing.
				Resolution: This is a mandatory requirement for all ENERGY STAR homes and cannot be waived, but it can be met through an "equivalent drainage system." If builders have questions about whether a specific wall assembly meets this requirement, they should submit a brief description of such a system and supporting pictures or drawings to energystarhomes@energystar.gov.
00355	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Comment**	**Item 2.1 – Length of flashing**
				Issue: Partners have asked if the flashing at the bottom of exterior walls must extend a specific length below the intersection of the exterior wall and foundation.
				Resolution: There is currently no requirement that the flashing at the bottom of exterior walls must extend a specific length below the intersection of the exterior wall and foundation. The intent of the flashing is to direct water from the drainage plane away from this intersection, thereby reducing the risk for water intrusion at this location.
00292	**12/31/2012**	**Water Management System Builder Checklist (Version**	**Change**	**Item 2.1 & Item 2.2 - Flashing and drainage plane for existing structural masonry walls**
				Issue: Partners certifying existing homes have noted that the installation of flashing (and the associated drainage plane) at the bottom of exterior structural masonry walls is generally

		3, Rev. 06)		unfeasible and unnecessary.
				Resolution: EPA agrees that integrating a drainage plane and flashing at the bottom of structural masonry wall assemblies is not typically feasible or necessary. While the exterior surface of the masonry wall serves as a less effective drainage plane than in modern wall assemblies, this is counterbalanced by the masonry's increased moisture storage capacity, which allows water to be retained without damage to the building until drying occurs. The addition of insulation to a masonry wall will alter this balance and must be carefully assessed. However, research indicates that in many cases, this balance can be achieved, avoiding the need to incorporate an interior drainage plane, flashing at the bottom of the drainage plane, and the addition of weep holes through the masonry. Partners are encouraged to read Building America's "Measure Guideline: Internal Insulation of Masonry Walls" by J.F. Straube, K. Ueno, and C.J. Schumacher of Building Science Corporation. Note that a drainage plane with flashing is required for a wall assembly with a masonry veneer. A new Footnote will be added to Item 2.1 and Item 2.2 as follows: "These Items not required for existing structural masonry walls (e.g., in a home undergoing a gut rehabilitation). Note this exemption does not extend to existing wall assemblies with masonry veneers."
00293	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Refinement**	**Item 2.2 and Footnote 8– Drainage plane: alignment with Indoor airPLUS language**
				Issue: The Water Management System Builder Checklist is designed to align with EPA's Indoor airPLUS (IAP) program. However, there is a slight disconnect between Item 2.2 and Footnote 8 of the ENERGY STAR Certified Homes program and the IAP program.
				Resolution: To ensure that this checklist aligns with the guidance in IAP, the phrase "and fully sealed at all penetrations" will be added to Item 2.2 as follows: "Fully sealed continuous drainage plane behind exterior cladding that laps over flashing in Item 2.1 and fully sealed at all penetrations. Additional bond-break drainage plane layer provided behind all stucco and non-structural masonry cladding wall assemblies." Additionally, the phrase "shingled at horizontal joints and " will be added to Footnote 8 as follows: "Any of the following systems may be used: a monolithic weather-resistant barrier (i.e., house wrap) shingled at horizontal joints and sealed or taped at all joints; weather resistant sheathings (e.g., faced rigid insulation) fully taped at all "butt" joints; lapped shingle-style building paper or felts; or other water-resistive barrier recognized by ICC-ES or other accredited agency."
00076	**07/25/2011**	**Water Management System Builder**	**Comment**	**Item 2.3 – Flexible flashing products**
				Issue: Partners have asked if flexible pan flashing products may be used to meet Item 2.3 or if

		Checklist (Version 3, Rev. 03)		rigid products are required.
				Resolution: Item 2.3 does not specify whether pan flashing must be flexible or rigid. As long as a material is water impermeable, attaches durably to the frame, and can be integrated with other materials to create a continuous drainage plane, it meets the intent of Item 2.3.
00077	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Clarification**	**Item 2.3 – Window and door openings fully flashed**
				Issue: Partners have asked if the American Architectural Manufacturers Association's (AAMA) Standard Practice for Installation of Windows with a Mounting Flange in Stud Frame Construction fulfills the requirements of Item 2.3. Partners have also asked whether pan flashing is required to extend up onto the side jambs.
				Resolution: In homes where water penetrates the window assembly, it will drain to the lowest point, which is the sill framing member. Item 2.3 is intended to help minimize the potential for water damage by fully flashing the windows. This includes applying the pan flashing over the rough sill framing, inclusive of the corners of the sill framing. Therefore, the AAMA Standard Practice document does not meet the intent of Item 2.3. This is because the document does not require the pan flashing to be applied over the rough sill framing. To clarify the intent of Item 2.3, the accompanying footnote will be revised as follows: "Apply pan flashing over the rough sill framing, inclusive of the corners of the sill framing; side flashing that extends over pan flashing; and top flashing that extends over side flashing."
00294	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Refinement**	**Item 2.3 - Flashing around window and door openings for structural masonry walls**
				Issue: Partners have requested that details be provided to clarify the flashing requirements for windows and doors in structural masonry walls.
				Resolution: A variety of details can be employed to effectively flash windows and doors in structural masonry walls, including the use of flexible self-adhering flashing. Partners are encouraged to read Building America's "Measure Guideline: Internal Insulation of Masonry Walls" by J.F. Straube, K. Ueno, and C.J. Schumacher of Building Science Corporation for an overview of such details. To provide greater flexibility to select appropriate details for flashing of windows and doors in structural masonry walls that meet the same intent as the current Checklist Item, the following phrase will be added to the end of Footnote 9: "…or equivalent details for structural masonry walls."
00295	**12/31/2012**	**Water Management System Builder Checklist (Version**	**Refinement**	**Item 3.1 – Step and kick-out flashing: alignment with Indoor airPLUS language**
				Issue: The Water Management System Builder Checklist is designed to align with EPA's Indoor airPLUS (IAP) program. However, there is a slight disconnect between Item 3.1 of the

		3, Rev. 06)		ENERGY STAR Certified Homes program and the IAP program.
				Resolution: To ensure that this checklist aligns with the guidance in IAP, the phrases "shingle-style" and "boot / collar flashing at all roof penetrations" will be added to Item 3.1 as follows: "Step and kick-out flashing at all roof-wall intersections, extending ≥ 4" on wall surface above roof deck and integrated shingle-style with drainage plane above; boot / collar flashing at all roof penetrations."
00079	**07/25/2011**	**Water Management System Builder Checklist (Version 3, Rev. 03)**	**Comment**	**Item 3.2 – Expansive or collapsible soils**
				Issue: Partners have asked if builders need to obtain a soil assessment for every home to comply with Item 3.2.
				Resolution: Only a home that is built in expansive or collapsible soils and that does not have a slab on grade foundation is required to meet Item 3.2. Therefore, if the home has a slab on grade foundation, the builder is not required to obtain a soil assessment and can mark this item as 'N/A'. Additionally, if the home is built with properly installed gutters & downspouts, it meets this requirement regardless of soil type and the builder is not required to obtain a soil assessment. A soil assessment is only needed for a home that does not have a slab on grade foundation and for which the builder needs to demonstrate that the soil is not expansive or collapsible so as to avoid the installation of gutters and downspouts.
00296	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Refinement**	**Item 3.2 & Footnote 11 – Gutters & downspouts: alignment w/ Indoor airPLUS language**
				Issue: The Water Management System Builder Checklist is designed to align with EPA's Indoor airPLUS (IAP) program. However, there is a slight disconnect between Item 3.2 and Footnote 11 of the ENERGY STAR Certified Homes program and the IAP program.
				Resolution: To further clarify the intent of this Item and ensure that this checklist aligns with the guidance in IAP, the word "deposit" will be revised to "discharge" and the phrase "not connected to the foundation drain system" will be added to Item 3.2. A note will also be added at the end of this Item directing partners to the alternatives and exemptions in the Footnote. The revised Item will read as follows: **"**For homes that don't have a slab-on-grade foundation and do have expansive or collapsible soils, gutters & downspouts provided that empty to lateral piping that discharges water on sloping final grade ≥ 5 ft. from foundation, or to underground catchment system not connected to the foundation drain system that discharges water ≥ 10 ft. from foundation. See Footnote for alternatives & exemptions." Additionally minor revisions to word choice will be made to Footnote 11 to improve consistency as follows: "The assessment of whether the soil is expansive or collapsible shall be completed by a

				certified hydrologist, soil scientist, or engineer. As an alternative, a roof design is permitted to be used that deposits rainwater to a grade-level rock bed with a waterproof liner and a lateral drain pipe that meets discharge requirements per Item 3.2. As another alternative, a rainwater harvesting system is permitted to be used that drains overflow to meet discharge requirements per Item 3.2."
00239	**09/10/2012**	**Water Management System Builder Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 3.3 – Alternative compliance method**
				Issue: Partners have asked if nailing metal flashing to roof valleys and around roof deck penetrations and sealing the nail holes with roofing tar will meet the intent of Item 3.3, which requires that a self-sealing bituminous membrane be installed at all roof valleys and roof deck penetrations. Partners have suggested that this approach provides an additional durable layer of protection at these vulnerable locations.
				Resolution: Nailing metal flashing to roof valleys and around roof deck penetrations and sealing the nail holes with roofing tar is permitted to be used to meet the intent of Item 3.3.
00240	**09/10/2012**	**Water Management System Builder Checklist (Version 3, Rev. 05)**	**Clarification**	**Item 4.1 – Carpeting in rooms adjacent to bathroom**
				Issue: Partners have asked if it is acceptable to install carpeting within 2.5 ft. of the toilet, tub, or shower if the carpeting is in an adjacent room. For example, a carpeted hallway may be within 2.5 ft. of these utilities.
				Resolution: Item 4.1 only applies to the room containing the toilet, tub, or shower. Therefore, carpeting is permitted to be installed within 2.5 ft. of a toilet, tub, or shower if the carpeting is in an adjacent room.
00154	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Clarification**	**Item 4.2 – Alternatives to cement board**
				Issue: Partners have asked if the Schluter-KERDI shower system, a waterproof membrane designed to be installed over drywall behind ceramic and stone tile coverings, can be used to meet the intent of Item 4.2, which requires "cement board or equivalent moisture-resistant backing material" behind tub and shower enclosures composed of tile or panel assemblies with caulked joints. Partners have noted that this product has been evaluated by the ICC Evaluation Service according to AC 115 – Acceptance Criteria for Waterproof Membranes for Flooring and Shower Lining.
				Resolution: The Schluter-KERDI shower system meets the intent of Item 4.2. AC 115 establishes standards regarding physical performance (ANSI A118.10-1999 Load Bearing, Bonded, Waterproof Membranes For Thin-set Ceramic Tile and Dimension Stone Installations), durability, and installation instructions. Materials that have passed such evaluations are "equivalent moisture-resistant backing materials" and meet the intent of Item 4.2 by helping to ensure that drywall behind them will not be exposed to water, thereby minimizing problems with mold, mildew, and water damage. To minimize the potential for mold growth, paper-faced

				backerboard must meet mold-resistant standards ASTM D3273 or ASTM D6329 when installed behind waterproof membranes evaluated according to AC 115. Footnote 13 will be revised as follows: "In addition to cement board, materials that have been evaluated by ICC-ES according to AC 115, Acceptance Criteria for Waterproof Membranes for Flooring and Shower Lining, may also be used to meet this requirement. Monolithic tub and shower enclosures (e.g., fiberglass with no seams) are exempt from this backing material requirement unless required by the manufacturer. Paper-faced backerboard may only be used behind monolithic enclosures or waterproof membranes that have been evaluated by ICC-ES according to AC 115, and then only if it meets ASTM mold-resistant standards ASTM D3273 or ASTM D6329."
00155	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Comment**	**Item 4.2 – Use of Thermoply**
				Issue: Partners have asked if Thermoply is a paper-faced product and if it can be used to meet the intent of Item 4.2, which prohibits paper-faced backerboard from being used on walls behind tub and shower enclosures composed of tile or panel assemblies with caulked joints.
				Resolution: Thermoply is a paper-faced product and does not comply with Item 4.2 except when coupled with a moisture-resistant backing material. The intent of Item 4.2 is to ensure that backing material installed behind tile and panel assemblies is not susceptible to mold, mildew, or other water damage.
00297	**12/31/2012**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 4.4. – Existing building materials with visible signs of water damage or mold**
				Issue: Partners certifying existing homes have questioned whether this Item applies to building materials that are already installed and have expressed concern that the removal of structural building materials is not typically within the scope of a gut rehabilitation.
				Resolution: If mold is present on existing structural building materials, effort should be made to remove all visible signs of mold using detergent or other method. If removal methods are not effective, or if water damage is present, then the material must be replaced. To clarify that the intent of this Item applies to both new and existing homes, Item 4.4 will be revised as follows: **"**Building materials with visible signs of water damage or mold *not* installed or allowed to remain."
00356	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Item 4.4 & Footnote 14 – Exemption for sap-stain fungi**
				Issue: Partners have noted that it is common for lumber to have dark interior stains in the sapwood caused by sap stain fungi and have requested that this type of generally benign mold be exempt from the requirements of Item 4.4. In addition, they have requested more detailed guidance on mold removal for other types of mold.

				Resolution: In consultation with the Indoor airPLUS program, an exemption will be added to Item 4.4 for sap stain fungi, and guidance on mold removal for other types of mold will be improved. Footnote 14 will be revised as follows: "If mold is present, effort should be made to remove all visible signs of mold (e.g., by damp wipe with water and detergent). If removal methods are not effective, then the material shall be replaced. However, stains that remain after damp wipe are acceptable. Lumber with "sap stain fungi" is exempt from this Item as long as the lumber is structurally intact."
00357	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Clarification**	**Item 4.5 – Both interior and exterior walls with high moisture content not to be enclosed**
				Issue: Partners have suggested that Item 4.5 can easily be misinterpreted as only requiring that interior, as opposed to exterior, walls not be enclosed if they have framing members or insulation products with high moisture content. In reality, this Item is intended to prevent the interior face of all walls from being enclosed with drywall if high moisture content is present.
				Resolution: To clarify that the intent of Item 4.5 is to prevent any interior or exterior wall from being enclosed (e.g. with drywall) if it contains framing members or insulation products with high moisture content, Item 4.5 will be revised as follows: "Framing members and insulation products having high moisture content *not* enclosed (e.g., with drywall)"
00156	**01/15/2012**	**Water Management System Builder Checklist (Version 3, Rev. 04)**	**Comment**	**Builder Employee field**
				Issue: Partners have asked if the Builder Employee field is required to be completed for every home.
				Resolution: The builder employee name must be documented if any items on the Checklist are marked "Builder Verified".
00358	**06/01/2013**	**Water Management System Builder Checklist (Version 3, Rev. 06)**	**Change**	**Footnote 3 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, a completed Indoor airPLUS Verification Checklist is no longer permitted to be completed in lieu of this Checklist. As a result Footnote 3, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist, will be removed.

00080	**07/25/2011**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 03)**	**Refinement**	**Crawlspace wall insulation characteristics**
				Issue: Partners have noted that for homes with crawlspace foundations, the Expanded ENERGY STAR Reference Design Definition requires that the crawlspace conditioning type always be vented and therefore configured with floor insulation. Therefore, references in this document to unvented crawlspaces and to crawlspace wall insulation are irrelevant.
				Response: To improve clarity, references to unvented crawlspaces and crawlspace wall insulation will be removed from the Building Component section for Foundations, as follows: • The first bullet in the Insulation section will be revised to state, "Basement Wall Assembly U-factor only applies to conditioned basements; if applicable, insulation shall be located on interior side of walls". • A new bullet will be added, stating, "Floor assemblies above crawlspace foundations shall be configured to meet the applicable floor assembly U-factor listed in the building component section for Floors over Unconditioned Spaces". • The line item listing Crawlspace Wall Assembly U-Factor values will be deleted.
00081	**07/25/2011**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 03)**	**Change**	**Determining gross basement wall area**
				Issue: Partners have expressed difficulty determining the percentage of gross basement wall area that is below grade when walls are not in contact with either the ground or outdoor ambient air. This occurs, for example, when a wall separates the basement spaces of adjacent townhome units.
				Response: EPA intended to exclude walls that are not in contact with either the ground or outdoor ambient air because of the difficulty of determining the area of the above-grade and below-grade portions of those walls. The beginning of Footnote 1 will be revised to read as follows: "To determine whether at least half of the basement wall area is below grade, use the gross surface area of the walls that are in contact with either the ground or ambient outdoor air, measured from the basement floor to the bottom of the basement ceiling framing (e.g., the bottom of the joists for the floor above)."
00082	**07/25/2011**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 03)**	**Change**	**Basement exclusion from Size Adjustment Factor**
				Issue: Partners have asked EPA to allow bedrooms in basements to be included when determining the Benchmark Home Size. In the rare instances where the majority of bedrooms in a home are located in the basement, excluding these bedrooms can result in the application of a significant Size Adjustment Factor, resulting in a meaningfully more stringent ENERGY STAR HERS Index Target.
				Response: To eliminate this hardship for these homes, EPA will now allow all bedrooms in the home to be counted when determining the Benchmark Home Size, regardless of location.

				This policy change will result in the same or less stringent target for all partners. Note that no change is being made to EPA's policy of excluding floor area in basements with at least half of the gross surface area of the exterior walls below grade. That is to say, floor area in basements with at least half of the gross surface area of the basement's exterior walls below grade shall not be counted when determining a home's Benchmark Home Size, Size Adjustment Factor, and eligibility to use the Prescriptive Path. The document will be revised as follows: • The last paragraph of Step 2 will be revised as follows: "For the purposes of this step, calculate the number of bedrooms and the CFA of the home to be built using RESNET standards with the following exception: floor area in basements with at least half of the gross surface area of the basement's exterior walls below grade shall not be counted. If the CFA of the home to be built exceeds the CFA of the Benchmark Home, then the Performance Path shall be used. Because the SAF cannot exceed 1.0, it only modifies the HERS Index Target for homes with conditioned floor area greater than the Benchmark Home. For condos and apartments in multi-family buildings the SAF shall always equal 1.0. • Footnote 1 will be revised as follows; "To determine whether at least half of the basement wall area is below grade, use the gross surface area of the walls that are in contact with either the ground or ambient outdoor air, measured from the basement floor to the bottom of the basement ceiling framing (e.g., the bottom of the joists for the floor above). Note that this change is only for the purpose of determining a home's Benchmark Home Size, Size Adjustment Factor, and eligibility to use the Prescriptive Path. The full conditioned floor area, per RESNET's standards, should be used when rating the home (e.g., determining compliance with duct leakage requirements). If a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used."
00158	**01/15/2012**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 04)**	**Comment**	**Glazing area**
				Issue: Partners have asked if windows located in the basement of the Rated Home should be included when calculating the glazing area of the ENERGY STAR Reference Design Home.
				Resolution: If the basement of the Rated Home is conditioned, then the glazing area in the basement should be included when configuring the ENERGY STAR Reference Design Home. Note that the glazing area of the ENERGY STAR Reference Design Home is capped at 15% of the conditioned floor area of the Rated Home. If the basement of the Rated Home is not conditioned, then the glazing area in the basement should be excluded.
00241	**09/10/2012**	**HERS Index Target Procedure for**	**Refinement**	**Exhibit 1 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a

		National Program Requirements (Version 3, Rev. 05)		home with zero bedrooms by including this information directly in Exhibit 1, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 1. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from Step 2.
00359	**06/01/2013**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 06)**	**Change**	**Exhibit 2, Service Water Heating Systems – Addition of oil water heater Energy Factors**
				Issue: Partners have noted that Energy Factors (EF) for oil hot water heaters are not provided in the Service Water Heating Systems Section of Exhibit 2.
				Resolution: The following rows will be added to the Service Water Heating Systems Section of Exhibit 2 to address the configuration of the ENERGY STAR Reference Design for homes with oil water heating: **Oil Storage Tank Capacity: 30 Gallon 40 Gallon 50 Gallon 60 Gallon 70 Gallon 80 Gallon** **Oil DHW EF:** 0.55 0.53 0.51 0.49 0.47 0.45
00360	**06/01/2013**	**HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 06)**	**Change**	**Exhibit 2, Service Water Heating Systems – Tank size**
				Issue: Partners have noted that the Service Water Heating Systems Section of Exhibit 2 does not contain guidance on which tank size to model.
				Resolution: The System Type definition in the Service Water Heating Systems Section of Exhibit 2 will be revised as follows to address the tank size to be modeled: "System Type: Conventional storage water heater with tank size equal to that of Rated Home, unless Rated Home uses instantaneous water heater, in which case select 40 gallon tank for gas systems and 60 gallon tank for electric systems. Select applicable efficiency from below using tank size of Reference Home."
00242	**09/10/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 05)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read:

				• "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade [2,3]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade [2,3] that have their own heating, cooling, and hot water systems[4], separate from other units, and where dwelling units occupy 80% or more of the occupiable [3] square footage of the building [5]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units in multifamily buildings that are not eligible to earn the ENERGY STAR through the New Homes Program may be eligible through the Multifamily High Rise Program." A footnote will be added to define the term "dwelling unit" that reads: "A dwelling unit, as defined by the 2009 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00361	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Refinement**	**Qualifying Homes Section – Regional program requirements**
				Issue: The Qualifying Homes Section states that: "Homes may earn the ENERGY STAR using the following ENERGY STAR Prescriptive Path or Performance Path in all states except those for which regional program requirements have been developed. See EPA's Web site for the latest list." Because the states with regional program requirements are not explicitly stated, partners may unknowingly use the County-Level Reference Design when regional program requirements exist for their state.
				Resolution: To ensure partners do not unknowingly use the County-Level Reference Design when regional program requirements exist for their state, the last paragraph in the Qualifying Homes Section will be revised as follows: "Homes may earn the ENERGY STAR using the following ENERGY STAR Prescriptive Path in all locations except CA, FL, GU, HI, MA, PR, and the Pacific Northwest, for which regional program requirements have been developed. Note that compliance with these guidelines is not intended to imply compliance with all local code requirements that may be applicable to the home to be built."
00362	**06/01/2013**	**County-Level Reference Design**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the

		Climate Zones 1-8 (Version 3, Rev. 06)		features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 3 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home. To clarify this intent, the following sentence will be added to the end of Footnote 10: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00363	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Clarification**	**Prescriptive Path - Below-grade wall area for a home with multiple basement spaces**
				Issue: Partners have asked how to determine whether at least half of the basement wall area is below grade for a home with multiple basement spaces.
				Resolution: For a home that has multiple basement spaces, the gross surface area of the walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.
00364	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Comment**	**Prescriptive Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00159	**01/15/2012**	**County-Level Reference Design Climate Zones 1-8**	**Clarification**	**Partnership, Training, and Credentialing Requirements**
				Issue: Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified

		(Version 3, Rev. 04)		homes.
				Resolution: A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the "ENERGY STAR Performance Path" section and read as follows: "Partnership, Training, and Credentialing Requirements Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying homes under these guidelines: • Builders are required to be ENERGY STAR partners and complete the online Version 3 Builder Orientation. Partnership Agreements and Version 3 Builder Orientation can be found at www.energystar.gov/homesPA. • HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this process and links to H-QUITOs can be found at www.energystar.gov/newhomesHVAC. Raters and Field Inspectors are required to complete Version 3 Training which can be found at www.resnet.us/energystar."
00243	**09/10/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 05)**	**Refinement**	**Partnership, Training, and Credentialing – Rater and Field Inspector training**
				Issue: EPA has identified that the website provided for Raters and Field Inspectors' Version 3 Training requirements is out of date.
				Resolution: Raters and Field Inspectors can find Version 3 Training requirements at www.energystar.gov/newhomestraining. This website will be provided in place of the out of date website.
00162	**01/15/2012**	**County-Level Reference Design, Climate Zone 1-8 (Version 3, Rev. 04)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this,

				Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00083	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Change**	**Program eligibility – Harmonizing requirements with Multifamily High-Rise Program**
				Issue: EPA has recently launched its ENERGY STAR Multifamily High Rise Program. The eligibility requirements of the ENERGY STAR for New Homes Program need to be harmonized with the eligibility requirements of that new program.
				Resolution: The eligibility requirements on page one of the County-Level Reference Design documents will be revised as follows: "To earn the ENERGY STAR under the Version 3 Guidelines, homes must be one of the following: • "Single family homes; OR • "Units in any multifamily building with 4 units or fewer; OR • "Units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • "Units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building.[4] When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. "Units in multifamily buildings that are not eligible for the ENERGY STAR through the New Homes program may be eligible to qualify through the Multifamily High Rise Program. The associated footnotes are as follows: 1. "Any above-grade story with 20% or more occupiable space, including commercial space, shall be counted towards the total number of stories for the purpose of determining eligibility to participate in the program. The definition of an 'above-grade story' is one for which more than half of the gross surface area of the exterior walls is above-grade. All below-grade stories, regardless of type, shall not be included when

				evaluating eligibility. 2. "Per ASHRAE 62.2-2010, occupiable space is any enclosed space inside the pressure boundary and intended for human activities or continual human occupancy, including, but not limited to, areas used for living, sleeping, dining, and cooking, toilets, closets, halls, storage and utility areas, and laundry areas. 3. "Central systems for domestic hot water are allowed if solar energy provides at least 50% of the domestic hot water needs for the residential units. 4. "Units in multifamily buildings with 4 or 5 stories above-grade, including mixed–use buildings, that have their own heating, cooling, and hot water systems, separate from other units, *but where dwelling units occupy less than 80%* of the residential (i.e., excluding commercial / retail space for mixed-use buildings) occupiable square footage of the building may qualify for the ENERGY STAR through either the New Homes program or the Multifamily High Rise program if permitted prior to July 1, 2012. Units in buildings of this type that are permitted after this date shall only be eligible to earn the ENERGY STAR through the Multifamily High Rise (MFHR) program."
00084	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Change**	**Determining gross basement wall area**
				Issue: Partners have expressed difficulty determining the percentage of gross basement wall area that is below grade when walls are not in contact with either the ground or outdoor ambient air. This occurs, for example, when a wall separates the basement spaces of adjacent townhome units.
				Response: EPA intended to exclude walls that are not in contact with either the ground or outdoor ambient air because of the difficulty of determining the area of the above-grade and below-grade portions of those walls. The beginning of Footnote 4 will be revised to read as follows: "To determine whether at least half of the basement wall area is below grade, use the gross surface area of the walls that are in contact with either the ground or ambient outdoor air, measured from the basement floor to the bottom of the basement ceiling framing (e.g., the bottom of the joists for the floor above)."
00085	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Change**	**Basement exclusion from Size Adjustment Factor**
				Issue: Partners have asked EPA to allow bedrooms in basements to be included when determining the Benchmark Home Size. In the rare instances where the majority of bedrooms in a home are located in the basement, excluding these bedrooms can result in the application of a significant Size Adjustment Factor, resulting in a meaningfully more stringent ENERGY STAR HERS Index Target.
				Response: To eliminate this hardship for these homes, EPA will now allow all bedrooms in the home to be counted when determining the Benchmark Home Size, regardless of location.

				This policy change will result in the same or less stringent target for all Partners. Note that no change is being made to EPA's policy of excluding floor area in basements with at least half of the gross surface area of the exterior walls below grade. That is to say, floor area in basements with at least half of the gross surface area of the basement's exterior walls below grade shall not be counted when determining a home's Benchmark Home Size, Size Adjustment Factor, and eligibility to use the Prescriptive Path. • Step 1 of the County-Level Reference Design documents will be revised as follows: "First, assess the eligibility to follow the Prescriptive Path by comparing the conditioned floor area (CFA) of the home to be built to the CFA of the Benchmark Home as specified in Exhibit 3. For the purposes of this step, calculate the number of bedrooms and the CFA of the home to be built using RESNET standards with the following exception: floor area in basements with at least half of the gross surface area of the basement's exterior walls below grade shall not be counted. If the CFA of the home to be built exceeds the CFA of the Benchmark Home, then the Performance Path shall be used. See www.energystar.gov/newhomesguidelines for more information on the Performance Path. • Footnote 4 will be revised as follows: "To determine whether at least half of the basement wall area is below grade, use the gross surface area of the walls that are in contact with either the ground or ambient outdoor air, measured from the basement floor to the bottom of the basement ceiling framing (e.g., the bottom of the joists for the floor above). Note that this change is only for the purpose of determining a home's Benchmark Home Size, Size Adjustment Factor, and eligibility to use the Prescriptive Path. The full conditioned floor area, per RESNET's standards, should be used when rating the home (e.g., determining compliance with duct leakage requirements). If a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used."
00086	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Refinement**	**ENERGY STAR Prescriptive Path errata**
				Issue: EPA has identified a minor typographical error in Step 1 of the Prescriptive Path in the county-level reference design documents: "First, assess the eligibility to follow the Prescriptive Path by comparing the conditioned floor area (CFA) of the home to [be] built to the CFA of the Benchmark Home as specified in Exhibit 2." Additionally, "Prescriptive Path" is not consistently capitalized in the county-level reference design documents. Particularly in Footnote 14, this error creates some confusion as to what "prescriptive path" refers to.
				Resolution: The phrase, "to built..." in Step 1 of the Prescriptive Path will be revised to "to be built..." References to the Prescriptive Path have been capitalized throughout the county-level reference design documents.

00161	**01/15/2012**	**County-Level Reference Design, Climate Zone 1-8 (Version 3, Rev. 04)**	**Refinement**	**Prescriptive Path - ENERGY STAR qualified lighting**
				Issue: The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.
				Resolution: To align terminology across programs, and to encourage partners to use ENERGY STAR qualified light fixtures in addition to qualified light bulbs, the Lighting & Appliances section will be revised to read in part: "ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations."
00365	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Refinement**	**Exhibit 1 – Redundant Section header and accompanying text removed**
				Issue: Partners have noted that the Section header and text accompanying Exhibit 1 contain information already found in the Prescriptive Path and title of Exhibit 1.
				Resolution: The Section header (i.e., "Mandatory Requirements for All ENERY STAR Qualified Homes") and accompanying text (i.e., "As noted in the Prescriptive Path, all ENERGY STAR Qualified New Homes must meet the requirements of the checklists in Exhibit 1") will be removed to eliminate redundancy.
00366	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Change**	**Exhibit 1 & Footnote 11 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 1 as will Footnote 11, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00244	**09/10/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 05)**	**Refinement**	**Exhibit 2 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 2, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 2. To avoid redundancy, the

				phrase “if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used” will be removed from the Prescriptive Path section.
00160	**01/15/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 04)**	**Change**	**Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: To address partners’ difficulties meeting the total duct leakage limit, the total duct leakage limit will be revised as follows: “Total duct leakage ≤ 8 CFM25 per 100 sq. ft. of conditioned area.” Because the total duct leakage threshold is not being changed for homes with less than 1,200 sq. ft. of conditioned floor area, there is no different threshold for those homes. Footnote 22 will be shortened to only include guidance related to duct leakage testing protocols: “Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol only after all components of the system have been installed (e.g., air handler and register grilles). Leakage limits shall be assessed on a per-system, rather than per-home, basis.” Remaining guidance related to testing duct leakage to the outside will be consolidated in Footnote 23, which will read as follows: “For homes that have ≤ 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area. Testing of duct leakage to the outside can be waived if all ducts & air handling equipment are located within the home’s air and thermal barriers AND envelope leakage has been tested to be less than or equal to half of the Prescriptive Path infiltration limit for the Climate Zone where the home is to be built. Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is ≤ 4 CFM25 per 100 sq. ft. of conditioned floor area, or ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area for homes that have less than 1,200 sq. ft. of conditioned floor area.”
00367	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Refinement**	**Exhibit 3 - Minimum Water Heater Efficiencies by Fuel Type and Tank Size**
				Issue: Partners have noted that the minimum water heater efficiencies for various fuel types and tank sizes are currently located in a table in Footnote 21. Partners may overlook these required minimum efficiencies because they are listed in a Footnote.

				Resolution: To ensure water heaters are meeting the minimum efficiency requirements by fuel type and tank size, the table containing this information in Footnote 21 will be moved to the Water Heater Section of Exhibit 3.
00368	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Clarification**	**Exhibit 3 – Infiltration rate**
				Issue: Partners have noted that the requirement for maximum allowable infiltration does not indicate that envelope leakage shall be determined by a Rater using a RESNET- approved testing protocol.
				Resolution: To ensure that envelope leakage is being determined by a Rater using a RESNET-approved testing protocol, the following Footnote will be added to the maximum allowable infiltration rate in the Envelope Section of Exhibit 3: "Envelope leakage shall be determined by a rater using a RESNET-approved testing protocol."
00245	**09/10/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 05)**	**Clarification**	**Footnote 9 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 9, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 9 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining."
00087	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Refinement**	**Footnote 10 – Slab framing systems**
				Issue: Partners have asked EPA to define the phrase "slab framing system" in Footnote 10 of the County-Level Reference Design documents.
				Response: This footnote will be revised to read as follows: "Insulation shall be verified by a Rater to achieve Grade I installation as defined in the RESNET Standards, except for ceiling, wall, and floor assemblies with continuous rigid insulation sheathing. For such homes, Grade II installation is acceptable for the cavity insulation only if the rigid insulation sheathing meets or exceeds the following levels: R-3 in Climate Zones 1 to 4; R-5 in Zones 5 to 8."
00246	**09/10/2012**	**County-Level Reference Design**	**Refinement**	**Footnote 11 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 11.

		Climate Zones 1-8 (Version 3, Rev. 05)		**Resolution:** The word "were" in Footnote 11 will be revised to "where".
00088	**07/25/2011**	**County-Level Reference Design Documents (Version 3, Rev. 03)**	**Refinement**	**Footnotes 11d and 12d – Insulation levels for steel-frame assemblies**
				Issue: Partners have advised that the county-level reference design documents reference erroneous guidance contained in the 2009 IECC related to the UA calculation for a steel-frame envelope assembly.
				Resolution: Footnote 12d in the County-Level Reference Designs for Climate Zones 1-3 and Footnote 11d in the County-Level reference Designs for Climate Zones 4-8 have been revised to read as follows: "…The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method."
00247	**09/10/2012**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 05)**	**Clarification**	**Footnote 20 – Allowance to use integrated/combined hot water products**
				Issue: Partners have asked if a single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in an ENERGY STAR Certified Home.
				Resolution: A single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating and domestic hot water shall be used. In contrast, a tankless coil water heater, where domestic water flows through a coil installed in the space heating system, is not permitted, due to the low efficiency of this system type. To clarify the allowable integrated domestic hot water and space heating systems, Footnote 20 will be revised as follows: "Domestic hot water systems that are integrated with the space-heating system are permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating and domestic hot water shall be used. A 'tankless coil water heater', where domestic water flows through a coil installed in the space-heating system, is not permitted."
00369	**06/01/2013**	**County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)**	**Clarification**	**Footnote 22 - Applicability of thermostats with 'Adaptive Recovery' technology**
				Issue: Partners have asked if Footnote 22, which states: "For homes with heat pumps, the thermostat shall have 'Adaptive Recovery' technology to prevent the excessive use of electric backup heating," is applicable to both air-source and ground-source heat pumps.
				Resolution: The requirement for thermostats with 'Adaptive Recovery' technology applies to

				any heat pump with an electric resistance heating element used to supplement the capacity of the heat pump, regardless of whether the heat pump is air-source or ground-source. Note that such a thermostat is not required for a home with a heat pump that only includes an electric resistance heating element used during compressor failure (i.e., emergency heat). To clarify when this requirement applies, Footnote 22 will be revised as follows: "For homes with heat pumps that contain an electric resistance heating element used to supplement the capacity of the heat pump, the thermostat shall have 'Adaptive Recovery' technology to prevent excessive use of the heating element."
00163	**01/15/2012**	**County-Level Reference Design, Climate Zone 1-3** **(Version 3, Rev. 04)**	**Clarification**	**Footnote 17d - Minimum insulation requirements when using a total UA calculation**
				Issue: Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that "while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated."
				Resolution: To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 17d will be revised as follows: "…Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated..."
00423	**09/23/2013**	**County-Level Reference Design Climate Zones 1-3 (Version 3, Rev. 07)**	**Change**	**Footnote 18d - Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Both the Performance Path and Prescriptive Path already define minimum performance limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than these limits from contributing to the total UA of the home.
				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define the limits for fenestration U-factor and SHGC, fenestration that does exceed these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 18d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies.

				A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method.”
00089	**07/25/2011**	**County-Level Reference Design: Climate Zone 4 (Version 3, Rev. 03)**	**Refinement**	**Climate Zone 4 Reference Design errata**
				Issue: Partners have noted that the Revision 02 County Level Reference Design for Climate Zone 4 contains several inconsistencies with the National ENERGY STAR Reference Design requirements.
				Response: The window U-value, window SHGC, and cooling efficiency requirements will be aligned with the national guidelines as follows: • Windows: ≤ 0.32 U-Value; 0.40 SHGC • If total window-to-floor area >15%, then U-values or SHGCs adjusted as outlined in Footnote 14. • Cooling equipment: ≥ 13 SEER AC; OR • ≥ 8.5 HSPF / 14.5 SEER / 12 EER ENERGY STAR qualified air-source heat pump with electric backup; OR • ≥ 8.2 HSPF / 14.5 SEER / 12 EER ENERGY STAR qualified air-source heat pump with ENERGY STAR qualified dual-fuel backup; OR • Ground source heat pump, any product type, ENERGY STAR qualified.
00164	**01/15/2012**	**County-Level Reference Design, Climate Zone 4-8 (Version 3, Rev. 04)**	**Clarification**	**Prescriptive Path – Heating equipment efficiencies**
				Issue: The minimum efficiency requirements for ENERGY STAR qualified gas furnaces manufactured after 02/01/2012 will increase from 90 AFUE to 95 AFUE for the U.S. North region, defined as states with population-weighted Heating Degree Days ≥ 5000. The ENERGY STAR Product Specification for Furnaces, Version 3.0 specifies which states are included in the U.S. North region. The ENERGY STAR Reference Design defined in Exhibit 1 currently requires an ENERGY STAR qualified 90 AFUE furnace in Climate Zones 4 through 8. Partners have asked how this will be modified to account for the new ENERGY STAR product specification for furnaces.
				Resolution: The ENERGY STAR for Homes guidelines will not be modified at this time to align

				with the more stringent efficiency level required in the new ENERGY STAR product specification for furnaces. The minimum efficiency level specified for gas furnaces in Climate Zones 4 through 8 under the Prescriptive Path and Exhibit 2 of the ENERGY STAR HERS Index Target Procedure will remain at 90 AFUE. The minimum requirement for gas furnaces in Climate Zones 4 through 8 in Exhibit 1 of the National Program Requirements will be revised by removing the phrase "ENERGY STAR qualified".
00165	**01/15/2012**	**County-Level Reference Design, Climate Zone 4-8 (Version 3, Rev. 04)**	**Clarification**	**Footnote 16d - Minimum insulation requirements when using a total UA calculation**
				Issue: Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that "while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated."
				Resolution: To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 16d will be revised as follows: "…Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated..."
00424	**09/23/2013**	**County-Level Reference Design Climate Zones 4-8 (Version 3, Rev. 07)**	**Change**	**Footnote 17d - Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Both the Performance Path and Prescriptive Path already define minimum performance limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than code from contributing to the total UA of the home.
				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define minimum performance limits for fenestration U-factor and SHGC, fenestration that does exceed these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 17d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the

				U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method."
00090	**07/25/2011**	**National Program Requirements (Version 2.5, Rev. 03)**	**Clarification**	**Exhibit 2, Footnote 3 – Timeline for low-income projects** **Issue:** Partners have asked EPA to clarify several aspects of the extended Version 2 timeline for low-income projects financed through low-income housing agencies, including the following: • What kind of organization qualifies as a "low-income housing agency"? • What kind of financial support qualifies as "funding"? • How should builders and developers document when funding applications are received by funding agencies? • What is the overall intent of the extended Version 2 timeline for this kind of project? **Response:** By "low-income housing agency," EPA means any entity that provides public funding to nonprofit builders and developers for the construction of housing projects specifically for low-income tenants. By "funding," EPA means public funding such as public grants or Low Income Housing Tax Credit (LIHTC) funds. The funding must be critical to the project financing, such as financing land acquisition, infrastructure, or construction. Funding intended for noncritical activities, such as for providing mortgage financing to homebuyers, does not qualify for the extended timeline. It is the responsibility of the funding applicant (the developer and builder) to keep on file written proof that they applied for public funds for use in constructing a low-income housing project to be ENERGY STAR qualified under Version 2. This documentation should identify the funding agency and the date when the funding application was received by the funding agency. This could be a copy of the funding application itself that has been date stamped by the funding agency. If there is no documentation that indicates when the funding application was received by the funding agency, there should at least be documentation that indicates when the funding application was sent to the funding agency by the funding applicant. It is the responsibility of the developer and builder to make this documentation available to the Rater (as well as to EPA upon request) so the Rater can verify whether or not the housing project qualifies for this exemption to the national Version 3 implementation timeline. Also, the builder or developer is responsible for providing to the Rater (as well as EPA upon request) a copy of documentation

				that shows that the funding was awarded prior to completion of the housing project. The intent of the low-income housing exemption to the national Version 3 implementation timeline is to give nonprofit low-income housing builders and developers additional time to build homes to earn the ENERGY STAR label under Version 2 with the understanding that low-income housing projects typically require some form of public funding in order to be constructed and that the process for obtaining public funding typically adds time to the build-out timeline. EPA decided to provide this exemption based on when the funding application was received as opposed to when the application was approved or when funding was actually received in order to avoid penalizing nonprofit low-income housing developers and builders for delays caused by the funding agency in reviewing and approving funding applications.
00091	**07/25/2011**	**National Program Requirements (Version 2.5, Rev. 03)**	**Comment**	**Performance Path – Exhaust fan requirements**
				Issue: Partners have asked whether ENERGY STAR labeled exhaust fans must be used in homes qualified under the Performance Path in ENERGY STAR Version 2.5.
				Resolution: When qualifying a home under Version 2.5 using the Performance Path, ENERGY STAR labeled exhaust fans are not required.
00248	**09/10/2012**	**California Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units in multifamily buildings that are not eligible to earn the ENERGY STAR through the New Homes Program may be eligible through the Multifamily High Rise

				Program." A footnote will be added to define the term "dwelling unit" that reads: "A dwelling unit, as defined by the 2009 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00167	**01/15/2012**	**California Program Requirements (Version 3, Rev. 01)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's performance meets or exceeds the California 2008 Building Energy Efficiency Standards requirements by 15%. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00168	**01/15/2012**	**California Program Requirements (Version 3, Rev. 01)**	**Clarification**	**Partnership, Training, and Credentialing Requirements**
				Issue: Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.

				Resolution: A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the "ENERGY STAR Performance Path" section and will read as follows: "Partnership, Training, and Credentialing Requirements Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying homes under these guidelines: • Builders are required to be ENERGY STAR partners and complete the online Version 3 Builder Orientation. Partnership Agreements and Version 3 Builder Orientation can be found at www.energystar.gov/homesPA. • HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this process and links to H-QUITOs can be found at www.energystar.gov/newhomesHVAC. Raters and Field Inspectors are required to complete Version 3 Training which can be found at www.resnet.us/energystar."
00249	**09/10/2012**	**California Program Requirements (Version 3, Rev. 02)**	**Refinement**	**Partnership, Training, and Credentialing – Rater and Field Inspector training**
				Issue: EPA has identified that the website provided for Raters and Field Inspectors' Version 3 Training requirements is out of date.
				Resolution: Raters and Field Inspectors can find Version 3 Training requirements at www.energystar.gov/newhomestraining. This website will be provided in place of the out of date website.
00370	**06/01/2013**	**California Program Requirements (Version 3, Rev. 03)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units if the infiltration rate is designed to be below that of the California 2008 Building Energy Efficiency Standards. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the CEC-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00371	**06/01/2013**	**California Program Requirements (Version 3, Rev. 03)**	**Change**	**Exhibit 1 & Footnote 10 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu

				of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 1 as will Footnote 10, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00250	**09/10/2012**	**California Program Requirements (Version 3, Rev. 02)**	**Refinement**	**Exhibit 2 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 2, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 2. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from the Performance Path section.
00251	**09/10/2012**	**California Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Footnote 7 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 7, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 7 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining."
00252	**09/10/2012**	**California Program Requirements (Version 3, Rev. 02)**	**Refinement**	**Footnote 8 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 8.
				Resolution: The word "were" in Footnote 8 will be revised to "where".
00253	**09/10/2012**	**California Program Requirements**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on

		(Version 2.5, Rev. 02)		the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units in multifamily buildings that are not eligible to earn the ENERGY STAR through the New Homes Program may be eligible through the Multifamily High Rise Program." A footnote will be added to define the term "dwelling unit" that reads: "A dwelling unit, as defined by the 2009 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00166	**01/15/2012**	**California Program Requirements (Version 2.5, Rev. 01)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's performance meets or exceeds the California 2008 Building Energy Efficiency Standards requirements by 15%. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used

				to help the home meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00372	**06/01/2013**	**California Program Requirements (Version 2.5, Rev. 03)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units if the infiltration rate is designed to be below that of the California 2008 Building Energy Efficiency Standards. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the CEC-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00373	**06/01/2013**	**California Program Requirements (Version 2.5, Rev. 03)**	**Change**	**Exhibit 1 & Footnote 8 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 1 as will Footnote 8, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.

00254	**09/10/2012**	**California Program Requirements (Version 2.5, Rev. 02)**	**Clarification**	**Footnote 6 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 6, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 6 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining."
00255	**09/10/2012**	**California Program Requirements (Version 2.5, Rev. 02)**	**Refinement**	**Footnote 9 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 9.
				Resolution: The word "were" in Footnote 9 will be revised to "where".
00256	**09/10/2012**	**Florida Program Requirements (Version 3.1, Rev. 03)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met.

				Dwelling units in multifamily buildings that are not eligible to earn the ENERGY STAR through the New Homes Program may be eligible through the Multifamily High Rise Program." A footnote will be added to define the term "dwelling unit" that reads: "A dwelling unit, as defined by the 2009 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00374	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 3 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home. To clarify this intent, the following sentence will be added to the end of Footnote 9: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00375	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Clarification**	**Prescriptive Path - Below-grade wall area for a home with multiple basement spaces**
				Issue: Partners have asked how to determine whether at least half of the basement wall area is below grade for a home with multiple basement spaces.
				Resolution: For a home that has multiple basement spaces, the gross surface area of the walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.

00376	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. The infiltration rate must also be verified for multifamily dwelling units certified using the Performance Path, if the infiltration rate is designed to be below that of the RESNET HERS Reference Home. Note that the RESNET HERS Reference Home infiltration rate is often significantly higher than the rate specified in the ENERGY STAR Reference Design. Therefore, if the RESNET HERS Reference Home infiltration rate is used in lieu of testing, other energy efficiency features will likely be required to compensate. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00377	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Refinement**	**Performance Path – Using software to determine the ENERGY STAR HERS Index Target**
				Issue: Partners have noted that all RESNET-accredited rating software programs used in the ENERGY STAR Certified Homes program are now capable of automatically configuring the ENERGY STAR Reference Design, calculating its associated HERS Index value, and then applying the Size Adjustment Factor to determine the ENERGY STAR HERS Index Target. As a result, Partners have questioned whether this process is still permitted to be completed manually.
				Resolution: To clarify that the process of determining the ENERGY STAR HERS Index Target must be completed using a RESNET-accredited rating software program, and is no longer permitted to be completed manually, the phrase “Use a RESNET-accredited Home Energy Rating software program…” will be added to the beginning of Step 1 of the Performance Path. Additionally, the second paragraph of Step 1 of the Performance Path, which states that Raters are permitted to calculate the ENERGY STAR HERS Index Target manually until software becomes available to do this automatically, will be removed.
00378	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Refinement**	**Step 2 of Performance Path - Reference to Thermal Enclosure System Rater Checklist**
				Issue: Partners have noted that Step 2 of the Performance Path specifies that the Mandatory Requirements for All Qualified Homes in Exhibit 2 are required, but then also specifies that two specific Items in the Thermal Enclosure System Rater Checklist (TES) are also required. This reference to two specific Items in the TES is redundant and may create confusion.
				Resolution: To improve clarity, the reference to Items 1.2 and 2.1 of the TES in Step 2 of the Performance Path will be removed and the first paragraph of Step 2 will be revised as follows:

				"Using the same RESNET-accredited Home Energy Rating software program, configure the preferred set of energy measures for the rated home and verify that the resulting HERS Index meets or exceeds the ENERGY STAR HERS Index Target, as determined in Step 1. Note that, regardless of the measures selected, Mandatory Requirements for All Qualified Homes in Exhibit 2 are also required and impose certain constraints on the energy measures selected (e.g., insulation levels, insulation installation quality, window performance, duct leakage)."
00176	**01/15/2012**	**Florida Program Requirements (Version 3.1, Rev. 02)**	**Clarification**	**Partnership, Training, and Credentialing Requirements**
				Issue: Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.
				Resolution: A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the "ENERGY STAR Performance Path" section and read as follows: "Partnership, Training, and Credentialing Requirements Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying homes under these guidelines: • Builders are required to be ENERGY STAR partners and complete the online Version 3 Builder Orientation. Partnership Agreements and Version 3 Builder Orientation can be found at www.energystar.gov/homesPA. • HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this process and links to H-QUITOs can be found at www.energystar.gov/newhomesHVAC. Raters and Field Inspectors are required to complete Version 3 Training which can be found at www.resnet.us/energystar."
00257	**09/10/2012**	**Florida Program Requirements (Version 3.1, Rev. 03)**	**Refinement**	**Partnership, Training, and Credentialing – Rater and Field Inspector training**
				Issue: EPA has identified that the website provided for Raters and Field Inspectors' Version 3 Training requirements is out of date.
				Resolution: Raters and Field Inspectors can find Version 3 Training requirements at www.energystar.gov/newhomestraining. This website will be provided in place of the out of date website.
00177	**01/15/2012**	**Florida Program Requirements (Version 3.1, Rev.**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the

		02)		home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00178	**01/15/2012**	**Florida Program Requirements (Version 3.1, Rev. 02)**	**Clarification**	**Footnote 10d - Minimum insulation requirements when using a total UA calculation**
				Issue: Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that "while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated."
				Resolution: To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 10d will be revised as follows: "…Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated..."
00179	**01/15/2012**	**Florida Program Requirements (Version 3.1, Rev. 02)**	**Change**	**Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve

				where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: To address partners' difficulties meeting the total duct leakage limit, the total duct leakage limit in the Thermostat & Ductwork section of Exhibit 1 will be revised as follows: "Total duct leakage ≤ 8 CFM25 per 100 sq. ft. of CFA." Additionally, because the total duct leakage threshold will now be the same for all homes, Footnote 22 will be removed.
00180	**01/15/2012**	**Florida Program Requirements (Version 3.1, Rev. 02)**	**Refinement**	**Prescriptive Path – ENERGY STAR qualified lighting**
				Issue: The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.
				Resolution: To align with the terminology now used to describe ENERGY STAR qualified lighting products, the lighting requirement in the ENERGY STAR Reference Design will be revised as follows: "ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations."
00379	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Refinement**	**Exhibit 2 – Redundant Section header and accompanying text removed**
				Issue: Partners have noted that the Section header and text accompanying Exhibit 2 contain information already found in the Performance Path, Prescriptive Path, and title of Exhibit 2.
				Resolution: The Section header (i.e., "Mandatory Requirements for All ENERY STAR Qualified Homes") and accompanying text (i.e., "As noted in the Performance Path and the Prescriptive Path, all ENERGY STAR Qualified New Homes must meet the requirements of the checklists in Exhibit 2") will be removed to eliminate redundancy.
00380	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Change**	**Exhibit 2 & Footnote 25 - 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 25, which describes how to use an Indoor airPLUS Verification

				Checklist as an alternative to the Water Management System Builder Checklist.
00258	**09/10/2012**	**Florida Program Requirements (Version 3.1, Rev. 03)**	**Refinement**	**Exhibit 3 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 3, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 3. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from the Prescriptive Path section.
00381	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Refinement**	**Exhibit 4 – Consolidation of Footnotes**
				Issue: Partners have noted that Exhibit 4 contains its own set of Footnotes separate from the general Footnotes for the rest of the document, which may cause confusion. Furthermore, they have noted that some of these Footnotes are duplicative of the general Footnotes for the rest of the document, others are obsolete, and others are specific to Exhibit 4.
				Resolution: To improve the clarity of the document, Footnote 1 of Exhibit 4 will be moved to the general Footnotes for the rest of the document and renumbered accordingly. Footnote 2 of Exhibit 4, which is duplicative of the general Footnote 14, will be deleted and Footnote 14 will be referenced instead. Footnote 3 of Exhibit 4, which allowed advance labeling of homes under Version 2.5 and prohibited homes from being qualified under Version 3 until January 1, 2012, is no longer applicable and will be removed. Footnote 4 of Exhibit 4, which allowed labeling of homes under Version 3 prior to July 1, 2012 where a utility or state sponsor was mandating or incentivizing early adoption, is no longer applicable and will be removed.
00259	**09/10/2012**	**Florida Program Requirements (Version 3.1, Rev. 03)**	**Clarification**	**Footnote 8 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 8, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 8 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector,

				BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining."
00382	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Refinement**	**Footnote 10 – Complete definition of ENERGY STAR Reference Design**
				Issue: Partners have noted that Footnote 10 defines where the complete definition of the ENERGY STAR Reference Design can be found. This information is already provided in Step 1 of the Performance Path. Therefore, this Footnote is redundant.
				Resolution: To avoid redundancy, Footnote 10 will be removed.
00425	**09/23/2013**	**Florida Program Requirements (Version 3.1, Rev. 05)**	**Change**	**Footnote 10d- Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Both the Performance Path and Prescriptive Path already define minimum performance limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than these limits from contributing to the total UA of the home.
				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define minimum performance limits for fenestration U-factor and SHGC, fenestration that does exceed these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 10d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method."
00260	**09/10/2012**	**Florida Program**	**Refinement**	**Footnote 13 – Typographical error**

		Requirements (Version 3.1, Rev. 03)		**Issue:** EPA has identified a minor typographical error in Footnote 13.
				Resolution: The word “were” in Footnote 13 will be revised to “where”.
00261	**09/10/2012**	**Florida Program Requirements (Version 3.1, Rev. 03)**	**Clarification**	**Footnote 19 – Allowance to use integrated/combined hot water products**
				Issue: Partners have asked if a single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in an ENERGY STAR Certified Home.
				Resolution: A single integrated/combined domestic hot water product intended for both space heating and domestic hot water is permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating and domestic hot water shall be used. In contrast, a tankless coil water heater, where domestic water flows through a coil installed in the space heating system, is not permitted, due to the low efficiency of this system type. To clarify the allowable integrated domestic hot water and space heating systems, Footnote 19 will be revised as follows: “Domestic hot water systems that are integrated with the space-heating system are permitted to be used in the following two scenarios: either the space-heating system (e.g., furnace or boiler) shall heat and circulate a fluid through an indirect storage tank, or a single integrated/combined product intended for both space heating and domestic hot water shall be used. A ‘tankless coil water heater’, where domestic water flows through a coil installed in the space-heating system, is not permitted.”
00383	**06/01/2013**	**Florida Program Requirements (Version 3.1, Rev. 04)**	**Clarification**	**Footnote 21 - Applicability of thermostats with ‘Adaptive Recovery’ technology**
				Issue: Partners have asked if Footnote 21, which states: “For homes with heat pumps, the thermostat shall have ‘Adaptive Recovery’ technology to prevent the excessive use of electric backup heating,” is applicable to both air-source and ground-source heat pumps.
				Resolution: The requirement for thermostats with ‘Adaptive Recovery’ technology applies to any heat pump with an electric resistance heating element used to supplement the capacity of the heat pump, regardless of whether the heat pump is air-source or ground-source. Note that such a thermostat is not required for a home with a heat pump that only includes an electric resistance heating element used during compressor failure (i.e., emergency heat). To clarify when this requirement applies, Footnote 21 will be revised as follows: "For homes with heat pumps that contain an electric resistance heating element used to supplement the capacity of the heat pump, the thermostat shall have ‘Adaptive Recovery’ technology to prevent excessive use of the heating element."

00262	**09/10/2012**	**HERS Index Target Procedure for the State of Florida (Version 3.1, Rev. 03)**	**Refinement**	**Exhibit 1 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 1, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 1. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from Footnote 1.
00384	**06/01/2013**	**HERS Index Target Procedure for the State of Florida (Version 3.1, Rev. 04)**	**Refinement**	**Exhibit 2, Service Water Heating Systems – Addition of oil water heater Energy Factors**
				Issue: Partners have noted that Energy Factors (EF) for oil hot water heaters are not provided in the Service Water Heating Systems Section of Exhibit 2.
				Resolution: The following rows will be added to the Service Water Heating Systems Section of Exhibit 2 to address the configuration of the ENERGY STAR Reference Design for homes with oil water heating: **Oil Storage Tank Capacity: 30 Gallon 40 Gallon 50 Gallon 60 Gallon 70 Gallon 80 Gallon** **Oil DHW EF:** 0.55 0.53 0.51 0.49 0.47 0.45
00385	**06/01/2013**	**HERS Index Target Procedure for the State of Florida (Version 3.1, Rev. 04)**	**Change**	**Exhibit 2, Service Water Heating Systems – Tank size**
				Issue: Partners have noted that the Service Water Heating Systems Section of Exhibit 2 does not contain guidance on which tank size to model.
				Resolution: The System Type definition in the Service Water Heating Systems Section of Exhibit 2 will be revised as follows to address the tank size to be modeled: "System Type: Conventional storage water heater with tank size equal to that of Rated Home, unless Rated Home uses instantaneous water heater, in which case select 40 gallon tank for gas systems and 60 gallon tank for electric systems. Select applicable efficiency from below using tank size of Rated Home. If Rated Home uses instantaneous water heater, then select the efficiency of the 40 gallon tank for gas systems and 60 gallon tank for electric systems."
00263	**09/10/2012**	**HERS Index Target Procedure for the State of Florida (Version 3.1, Rev. 03)**	**Refinement**	**Footnote 4 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 4.
				Resolution: The word "were" in Footnote 4 will be revised to "where".
00264	**09/10/2012**	**Florida Program**	**Clarification**	**Eligibility to certify detached structures**

		Requirements (Version 3, Rev. 03)		**Issue:** Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units in multifamily buildings that are not eligible to earn the ENERGY STAR through the New Homes Program may be eligible through the Multifamily High Rise Program." A footnote will be added to define the term "dwelling unit" that reads: "A dwelling unit, as defined by the 2009 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00386	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 2 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who

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

		(Version 3, Rev. 02)		requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.
				Resolution: A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the "ENERGY STAR Performance Path" section and will read as follows: "Partnership, Training, and Credentialing Requirements Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying homes under these guidelines: • Builders are required to be ENERGY STAR partners and complete the online Version 3 Builder Orientation. Partnership Agreements and Version 3 Builder Orientation can be found at www.energystar.gov/homesPA. • HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this process and links to H-QUITOs can be found at www.energystar.gov/newhomesHVAC. Raters and Field Inspectors are required to complete Version 3 Training which can be found at www.resnet.us/energystar."
00265	**09/10/2012**	**Florida Program Requirements (Version 3, Rev. 03)**	**Refinement**	**Partnership, Training, and Credentialing – Rater and Field Inspector training**
				Issue: EPA has identified that the website provided for Raters and Field Inspectors' Version 3 Training requirements is out of date.
				Resolution: Raters and Field Inspectors can find Version 3 Training requirements at www.energystar.gov/newhomestraining. This website will be provided in place of the out of date website.
00170	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 02)**	**Clarification**	**Conflicts with code or other external guidelines**
				Issue: Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?
				Resolution: If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this,

				Footnote 5 will be revised as follows: a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met; "In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."
00169	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 01)**	**Change**	**Whole-house mechanical ventilation**
				Issue: Partners have noted that there is an inconsistency between Footnote 17, which reads "To ensure consistent exchange of indoor air, whole-house mechanical ventilation is recommended, but not required" and Section 1 of the HVAC System Quality Installation Contractor Checklist, which requires whole-house mechanical ventilation for all homes.
				Resolution: To correct the inconsistency between Footnote 17 and Section 1 of the HVAC System Quality Installation Contractor Checklist, Footnote 17 will be removed from the Version 3 Program Requirements for Florida. That document, along with the Version 2.5 and Version 3.1 Program Requirements for Florida and the Version 3.1 HERS Index Target Procedure for Florida, will all be re-posted and labeled as Revision 02 of the Florida guidelines. The sole change being made as part of Revision 02 to the Florida guidelines will be to remove Footnote 17 from the Version 3 Program Requirements for Florida.
00173	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 02)**	**Change**	**Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: To address partners' difficulties meeting the total duct leakage limit, the total duct leakage limit in the Ductwork section of Exhibit 1 will be revised as follows: "Total duct leakage ≤ 8 CFM25 per 100 sq. ft. of conditioned area." Footnote 12 will be shortened to only include guidance related to duct leakage testing

				protocols: "Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol only after all components of the system have been installed (e.g., air handler and register grilles). Leakage limits shall be assessed on a per-system, rather than per-home, basis." Remaining guidance related to testing duct leakage to the outside will be consolidated in Footnote 13, which will read as follows: "For homes that have ≤ 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area. Testing of duct leakage to the outside can be waived if all ducts & air handling equipment are located within the home's air and thermal barriers AND envelope leakage has been tested to be less than or equal to half of the Prescriptive Path infiltration limit for the Climate Zone where the home is to be built. Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is ≤ 3 CFM25 per 100 sq. ft. of conditioned floor area, or ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area for homes that have less than 1,200 sq. ft. of conditioned floor area."
00174	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 02)**	**Change**	**Prescriptive Path – Window and Skylight Requirements**
				Issue: Partners have noted that Exhibit 1 requires windows and doors to achieve a U-value ≤ 0.52 and a SHGC ≤ 0.32. In contrast, Footnote 9 and Item 1.1 of the Thermal Enclosure System Rater Checklist indicate that windows and doors shall meet or exceed ENERGY STAR Program Requirements for Residential Windows, Doors, and Skylights – Version 5.0, which are more stringent. Furthermore, Footnote 17 states that all windows and skylights must be ENERGY STAR qualified or meet all specifications for ENERGY STAR qualified windows. As a result, there are conflicting requirements for the performance of windows and skylights.
				Resolution: To resolve the conflicting requirements for the performance of windows and skylights, the first sentence of Footnote 9 will be removed and Footnote 17 will be revised as follows: "For Prescriptive Path: Homes qualified under this version of the guidelines are not required to comply with Thermal Enclosure System Rater Checklist Item 1.1, which states that fenestration shall meet or exceed ENERGY STAR requirements. Raters are permitted to mark 'N/A' for this Checklist Item."
00175	**01/15/2012**	**Florida Program Requirements (Version 3, Rev. 02)**	**Refinement**	**Prescriptive Path – ENERGY STAR qualified lighting**
				Issue: The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.
				Resolution: To align with the terminology now used to describe ENERGY STAR qualified lighting products, the lighting requirement in the Florida Builder Option Package will be revised as follows: "Advanced Lighting Package (ALP) or ENERGY STAR qualified light bulbs or fixtures shall be installed in 60% of RESNET-defined Qualifying Light Fixture Locations".

00389	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Refinement**	**Exhibit 2 – Redundant Section header and accompanying text removed**
				Issue: Partners have noted that the Section header and text accompanying Exhibit 2 contain information already found in the Performance Path, Prescriptive Path, and title of Exhibit 2.
				Resolution: The Section header (i.e., "Mandatory Requirements for All ENERY STAR Qualified Homes") and accompanying text (i.e., "As noted in the Performance Path and the Prescriptive Path, all ENERGY STAR Qualified New Homes must meet the requirements of the checklists in Exhibit 2") will be removed to eliminate redundancy.
00390	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Change**	**Exhibit 2 & Footnote 27 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 2 as will Footnote 27, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00391	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Refinement**	**Exhibit 3 – Consolidation of Footnotes**
				Issue: Partners have noted that Exhibit 3 contains its own set of Footnotes separate from the general Footnotes for the rest of the document, which may cause confusion. Furthermore, they have noted that some of these Footnotes are duplicative of the general Footnotes for the rest of the document, others are obsolete, and others are specific to Exhibit 3.
				Resolution: To improve the clarity of the document, Footnote 1 of Exhibit 3 will be moved to the general Footnotes for the rest of the document and renumbered accordingly. Footnote 2 of Exhibit 3, which is duplicative of the general Footnote 11, will be deleted and Footnote 11 will be referenced instead. Footnote 3 of Exhibit 3, which allowed advance labeling of homes under Version 2.5 and prohibited homes from being qualified under Version 3 until January 1, 2012, is no longer applicable and will be removed. Footnote 4 of Exhibit 3, which allowed labeling of homes under Version 3 prior to July 1, 2012 where a utility or state sponsor was mandating or incentivizing early adoption, is no longer applicable and will be removed.
00171	**01/15/2012**	**Florida Program**	**Clarification**	**Footnote 7d - Minimum insulation requirements when using a total UA calculation**

		Requirements (Version 3, Rev. 02)		**Issue:** Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that "while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated."
				Resolution: To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 7d will be revised as follows: "…Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated..."
00266	**09/10/2012**	**Florida Program Requirements (Version 3, Rev. 03)**	**Clarification**	**Footnote 6 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 6, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 6 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining."
00426	**09/23/2013**	**Florida Program Requirements (Version 3, Rev. 05)**	**Change**	**Footnote 8d – Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Both the Performance Path and Prescriptive Path already define minimum performance limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than these limits from contributing to the total UA of the home.
				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define minimum performance limits for fenestration U-factor and SHGC, fenestration that does exceed these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system.

				Footnote 8d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method."
00267	**09/10/2012**	**Florida Program Requirements (Version 3, Rev. 03)**	**Refinement**	**Footnote 10 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 10.
				Resolution: The word "were" in Footnote 10 will be revised to "where".
00392	**06/01/2013**	**Florida Program Requirements (Version 3, Rev. 04)**	**Clarification**	**Footnote 12 - Applicability of thermostats with 'Adaptive Recovery' technology**
				Issue: Partners have asked if Footnote 12, which states: "For homes with heat pumps, the thermostat shall have 'Adaptive Recovery' technology to prevent the excessive use of electric backup heating," is applicable to both air-source and ground-source heat pumps.
				Resolution: The requirement for thermostats with 'Adaptive Recovery' technology applies to any heat pump with an electric resistance heating element used to supplement the capacity of the heat pump, regardless of whether the heat pump is air-source or ground-source. Note that such a thermostat is not required for a home with a heat pump that only includes an electric resistance heating element used during compressor failure (i.e., emergency heat). To clarify when this requirement applies, Footnote 12 will be revised as follows: "For homes with heat pumps that contain an electric resistance heating element used to supplement the capacity of the heat pump, the thermostat shall have 'Adaptive Recovery' technology to prevent excessive use of the heating element."
00092	**07/25/2011**	**Florida Program Requirements (Version 2.5, Rev. 03)**	**Clarification**	**Footnote 3 – Timeline for low-income projects**
				Issue: Partners have asked EPA to clarify several aspects of the extended Version 2 timeline for low-income projects financed through low-income housing agencies, including the following: • What kind of organization qualifies as a "low-income housing agency"?

				• What kind of financial support qualifies as “funding”? • How should builders and developers document when funding applications are received by funding agencies? What is the overall intent of the extended Version 2 timeline for this kind of project?
				Response: By "low-income housing agency,” EPA means any entity that provides public funding to nonprofit builders and developers for the construction of housing projects specifically for low-income tenants. By "funding," EPA means public funding such as public grants or Low Income Housing Tax Credit (LIHTC) funds. The funding must be critical to the project financing, such as financing land acquisition, infrastructure, or construction. Funding intended for noncritical activities, such as for providing mortgage financing to homebuyers, does not qualify for the extended timeline. It is the responsibility of the funding applicant (the developer and builder) to keep on file written proof that they applied for public funds for use in constructing a low-income housing project to be ENERGY STAR qualified under Version 2. This documentation should identify the funding agency and the date when the funding application was received by the funding agency. This could be a copy of the funding application itself that has been date stamped by the funding agency. If there is no documentation that indicates when the funding application was received by the funding agency, there should at least be documentation that indicates when the funding application was sent to the funding agency by the funding applicant. It is the responsibility of the developer and builder to make this documentation available to the Rater (as well as to EPA upon request) so the Rater can verify whether or not the housing project qualifies for this exemption to the national Version 3 implementation timeline. Also, the builder or developer is responsible for providing to the Rater (as well as EPA upon request) a copy of documentation that shows that the funding was awarded prior to completion of the housing project. The intent of the low-income housing exemption to the national Version 3 implementation timeline is to give nonprofit low-income housing builders and developers additional time to build homes to earn the ENERGY STAR label under Version 2 with the understanding that low-income housing projects typically require some form of public funding in order to be constructed and that the process for obtaining public funding typically adds time to the build-out timeline. EPA decided to provide this exemption based on when the funding application was received as opposed to when the application was approved or when funding was actually received in order to avoid penalizing nonprofit low-income housing developers and builders for delays caused by the funding agency in reviewing and approving funding applications.
00268	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 00)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be

				concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units in multifamily buildings that are not eligible to earn the ENERGY STAR through the New Homes Program may be eligible through the Multifamily High Rise Program." A footnote will be added to define the term "dwelling unit" that reads: "A dwelling unit, as defined by the 2009 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.
00269	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 00)**	**Refinement**	**Exhibit 3 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 3, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 3. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from the Prescriptive Path section.
00270	**09/10/2012**	**Hawaii and Puerto**	**Clarification**	**Footnote 8 - Definition of a Rater**

		Rico Program Requirements (Version 3, Rev. 00)		**Issue:** Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 8, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 8 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining."
00271	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 00)**	**Refinement**	**Footnote 9 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 9.
				Resolution: The word "were" in Footnote 9 will be revised to "where".
00192	**06/27/2012**	**Inspection Checklists for HI & PR** **(Version 3, Rev. 00)**	**Change**	**Cover Page - Sampling protocol**
				Issue: Partners have asked for clarification on three issues related to sampling. First, partners have asked if Raters are required to work under an accredited Sampling Provider in order to conduct sampling. EPA's guidance on the use of sampling on the first page of the Inspection Checklists does not explicitly address this issue. Second, partners in California have noted that the Residential Appendix to the California HERS Standards 2.6.2, "HERS Procedures – Group Sample Field Verification and Diagnostic Testing," defines the sampling protocol recognized by the On-Site Inspection Procedures for California HERS Ratings. The ENERGY STAR Version 3 Program Requirements for the State of California stipulates that this standard must be followed. Therefore, for homes in CA there is an inadvertent conflict between the requirement to use the On-Site Inspection Procedures for California HERS Ratings and the requirement to use a RESNET-approved sampling protocol. Third, partners have asked if a Rater can use a sampling protocol to verify items on the Water Management System Builder Checklist. Currently, EPA only allows sampling for the Thermal Enclosure System Rater Checklist and the HVAC System Quality Installation Rater Checklist. Partners have noted that Raters who complete parts of the Water Management System Builder Checklist would still be subject to standards for performing sampling and to oversight through Provider QA. Partners believe that these are adequate assurances that Rater-verified items can be sampled with a high level of confidence in the integrity of the rating.
				Resolution: First, EPA will clarify that Raters are in fact required to work under an accredited Sampling Provider in order to conduct sampling.

				Second, where Raters are required to operate under RESNET-accredited Providers, they shall use the RESNET-approved sampling protocol when sampling is used. Where Raters are required to operate under California Energy Commission-recognized Providers, they shall use the CEC-approved sampling protocol when sampling is used. Third, EPA will clarify that Raters working under an accredited Sampling Provider may use the applicable (either RESNET or California Energy Commission) sampling protocol to verify any inspection checklist item that may be designated “Rater Verified”. Therefore, Raters are permitted to use sampling to verify items on the Thermal Enclosure System Rater Checklist, the HVAC System Quality Installation Rater Checklist, and the Water Management System Builder Checklist. No parties other than Raters shall use sampling. No items on the HVAC System QI Contractor Checklist are permitted to be verified using a sampling protocol because they may only be designated as “Builder Verified” or “Contractor Verified”. Even if a Rater is hired as a subcontractor by a builder or contractor to verify items on the HVAC System Quality Installation Contractor Checklist, the Rater shall not use sampling. The first page of the National Version 3 Inspection Checklists and the Hawaii Version 3 Inspection Checklists will be revised to: “Raters who operate under a Sampling Provider are permitted to use the RESNET-approved sampling protocol for homes located outside California, and the CEC-approved sampling protocol for homes located in CA, to verify any item designated “Rater Verified”. No parties other than Raters are permitted to use sampling. All other items shall be verified for each certified home. “For example, no items on the HVAC System QI Contractor Checklist are permitted to be verified using a sampling protocol because they may only be designated as “Builder Verified” or “Contractor Verified”. As another example, if a Rater verifies 10 items on the Water Management System Builder Checklist and the builder verifies the remaining checklist items, then the applicable (either RESNET or CEC) sampling protocol is permitted to be used only on the 10 Rater-verified items.”
00272	**09/10/2012**	**Inspection Checklists for HI & PR** **(Version 3, Rev. 00)**	**Clarification**	**Footnote 2 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 2, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 2 will be revised as follows: “The term ‘Rater’ refers to the person completing the third-party inspections required for qualification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight

				Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining."
00273	**09/10/2012**	**Inspection Checklists for HI & PR (Version 3, Rev. 00)**	**Clarification**	**Alignment with National Inspection Checklists**
				Issue: The HVAC System QI Contractor Checklist, HVAC System QI Rater Checklist, and Water Management System Builder Checklist from the National Program are also used in the HI & PR program. Therefore, the edits made to these Checklists apply to both regions. EPA has determined that listing the identical edits twice as separate Policy Record entries will not provide value.
				Resolution: Because the HVAC System QI Contractor Checklist, HVAC System QI Rater Checklist, and Water Management System Builder Checklist from the National Program are also used in the HI & PR program, edits to these Checklists will also apply to the HI & PR region. Rather than listing these edits twice in the Policy Record, they will be listed as edits to the "Inspection Checklists Version 3, Rev. 05" in the Program Document column.
00274	**09/10/2012**	**Thermal Comfort System Rater Checklist for HI & PR (Version 3, Rev. 00)**	**Clarification**	**Footnote 1 – Reference to requirements for credentialed HVAC contractors**
				Issue: As noted in Policy Record entry 00227, the description of the requirements for credentialed HVAC contractors will be moved from the cover page of the Inspection Checklists to a new Footnote in the HVAC System QI Rater Checklist. As a result, Footnote 1 of the Thermal Comfort System Rater Checklist for HI & PR will need to be updated to reference this new Footnote.
				Resolution: Because the description of the requirements for credentialed HVAC contractors will move from the cover page of the Inspection Checklists to a new Footnote in the HVAC System QI Rater Checklist, Footnote 1 of the Thermal Comfort System Rater Checklist for HI & PR will be revised as follows: "Cooling loads shall be calculated according to the latest edition of ACCA Manual J. The Rater, builder, and HVAC contractor are permitted to calculate the load. An HVAC contractor is not required to hold specific credentials to complete this calculation. However, note that contractors completing the HVAC System QI Contractor Checklist shall be credentialed per the requirements indicated in Footnote 10 of the HVAC System QI Rater Checklist."
00275	**09/10/2012**	**HERS Index Target Procedure for Hawaii and Puerto Rico (Version 3, Rev. 00)**	**Refinement**	**Exhibit 1 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 1, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 1. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination,

				then the Benchmark Home Size for one bedroom shall be used" will be removed from Footnote 1.
00276	**09/10/2012**	**HERS Index Target Procedure for Hawaii and Puerto Rico** **(Version 3, Rev. 00)**	**Refinement**	**Footnote 4 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 4.
				Resolution: The word "were" in Footnote 4 will be revised to "where".
00277	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 00)**	**Clarification**	**Eligibility to certify detached structures**
				Issue: Several partners have noted that multiple detached structures are sometimes built on the same property. The purpose of these detached structures can vary (e.g., a guest house, a garage, a workshop, a primary residence). The time of construction of the structures may be concurrent or non-concurrent. For example a primary residence may be constructed one year and a detached guesthouse built several years later. Partners have asked for clarification on what types of detached structures are eligible to be certified and if there are any scenarios under which a detached structure must be certified.
				Resolution: To clarify which types of structures are eligible to participate in the ENERGY STAR Homes program, the Qualifying Homes section will be revised to read: • "Detached dwelling units (e.g. single family homes); OR • Dwelling units in any multifamily building with 4 units or fewer; OR • Dwelling units in multifamily buildings with 3 stories or fewer above-grade[1,2]; OR • Dwelling units in multifamily buildings with 4 or 5 stories above-grade[1,2] that have their own heating, cooling, and hot water systems[3], separate from other units, and where dwelling units occupy 80% or more of the occupiable[2] square footage of the building[4]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met. Dwelling units in multifamily buildings that are not eligible to earn the ENERGY STAR through the New Homes Program may be eligible through the Multifamily High Rise Program." A footnote will be added to define the term "dwelling unit" that reads: "A dwelling unit, as defined by the 2009 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation." Additionally, EPA recommends, but does not require, that multiple dwelling units that are constructed on a single property (e.g., condos, townhomes, a dwelling unit above a detached garage that is on the same properly as a single-family home) all be certified.

00278	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 00)**	**Refinement**	**Exhibit 3 - Inclusion of zero bedrooms in Benchmark Home exhibit**
				Issue: EPA has identified that it can more clearly convey the Benchmark Home size for a home with zero bedrooms by including this information directly in Exhibit 3, rather than discussing it in the accompanying text.
				Resolution: To more clearly convey the Benchmark Home size of a home with zero bedrooms, a column for zero bedrooms will be added to Exhibit 3. To avoid redundancy, the phrase "if a home has zero bedrooms with regard to the Benchmark Home Size determination, then the Benchmark Home Size for one bedroom shall be used" will be removed from the Prescriptive Path section.
00279	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 00)**	**Clarification**	**Footnote 8 - Definition of a Rater**
				Issue: Partners have asked if a Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist.
				Resolution: A Rater may hire another party to complete aspects of the HVAC System Quality Installation Rater Checklist as long as that party fulfills the requirements of Footnote 8, which defines a Rater. To more clearly communicate the requirements for completing Rater Checklists, Footnote 8 will be revised as follows: "The term 'Rater' refers to the person completing the third-party inspections required for qualification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining."
00280	**09/10/2012**	**Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 00)**	**Refinement**	**Footnote 9 – Typographical error**
				Issue: EPA has identified a minor typographical error in Footnote 9.
				Resolution: The word "were" in Footnote 9 will be revised to "where".
00413	**06/01/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 00)**	**Clarification**	**Prescriptive Path – Use of sampling protocol**
				Issue: Partners have asked whether a sampling protocol is permitted to be used to verify the features of the ENERGY STAR Reference Design in homes following the Prescriptive Path, such as insulation levels, infiltration rates, and duct leakage levels.
				Resolution: Per Step 3 of the Prescriptive Path, a Rater is required to verify that all requirements have been met in accordance with the Mandatory Requirements for All Qualified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. With regards to the frequency with which these requirements must be verified, Raters who

				operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home. To clarify this intent, the following sentence will be added to the end of Footnote 8: "Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol."
00414	**06/01/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 00)**	**Clarification**	**Prescriptive Path - Below-grade wall area for a home with multiple basement spaces**
				Issue: Partners have asked how to determine whether at least half of the basement wall area is below grade for a home with multiple basement spaces.
				Resolution: For a home that has multiple basement spaces, the gross surface area of the walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.
00415	**06/01/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 00)**	**Comment**	**Prescriptive & Performance Path – Verification of infiltration rate in multifamily units**
				Issue: Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				Resolution: The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. The infiltration rate must also be verified for multifamily dwelling units certified using the Performance Path, if the infiltration rate is designed to be below that of the RESNET HERS Reference Home. Note that the RESNET HERS Reference Home infiltration rate is often significantly higher than the rate specified in the ENERGY STAR Reference Design. Therefore, if the RESNET HERS Reference Home infiltration rate is used in lieu of testing, other energy efficiency features will likely be required to compensate. With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00416	**06/01/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 00)**	**Change**	**Exhibit 2 & Footnote 21 - Removal of Indoor airPLUS Checklist as compliance option**
				Issue: Partners have noted that EPA's Indoor airPLUS program requires ENERGY STAR Certification of a home as an explicit prerequisite to participation in the Indoor airPLUS Program. Therefore, references to completing the Indoor airPLUS Verification Checklist in lieu of the ENERGY STAR Water Management System Builder Checklist are no longer

				appropriate.
				Resolution: Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home's participation in the Indoor airPLUS program, the phrase "(or Indoor airPLUS Verification Checklist)" will be removed from Exhibit 2 as will Footnote 21, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00427	**09/23/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 01)**	**Change**	**Footnote 14d – Inclusion of Fenestration in Total UA Calculation**
				Issue: Partners have requested that fenestration performance be included in the calculation of total UA. Both the Performance Path and Prescriptive Path already define limits for fenestration U-factor and SHGC. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than these limits from contributing to the total UA of the home.
				Resolution: Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While the Performance Path and Prescriptive Path still define minimum performance limits for fenestration U-factor and SHGC, fenestration that exceeds these limits can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 14d of the will be revised as follows: "An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows: An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies. A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method."
00417	**06/01/2013**	**Massachusetts Program Requirements (Version 3.1, Rev. 00)**	**Clarification**	**Footnote 18 - Applicability of thermostats with 'Adaptive Recovery' technology**
				Issue: Partners have asked if Footnote 18, which states: "For homes with heat pumps, the thermostat shall have 'Adaptive Recovery' technology to prevent the excessive use of electric backup heating," is applicable to both air-source and ground-source heat pumps.
				Resolution: The requirement for thermostats with 'Adaptive Recovery' technology applies to

				any heat pump with an electric resistance heating element used to supplement the capacity of the heat pump, regardless of whether the heat pump is air-source or ground-source. Note that such a thermostat is not required for a home with a heat pump that only includes an electric resistance heating element used during compressor failure (i.e., emergency heat). To clarify when this requirement applies, Footnote 18 will be revised as follows: "For homes with heat pumps that contain an electric resistance heating element used to supplement the capacity of the heat pump, the thermostat shall have 'Adaptive Recovery' technology to prevent excessive use of the heating element."
00418	**06/01/2013**	**HERS Index Target Procedure for Massachusetts (Version 3.1, Rev.00)**	**Refinement**	**Exhibit 2, Service Water Heating Systems – Addition of oil water heater Energy Factors**
				Issue: Partners have noted that Energy Factors (EF) for oil hot water heaters are not provided in the Service Water Heating Systems Section of Exhibit 2.
				Resolution: The following rows will be added to the Service Water Heating Systems Section of Exhibit 2 to address the configuration of the ENERGY STAR Reference Design for homes with oil water heating: **Oil Storage Tank Capacity: 30 Gallon 40 Gallon 50 Gallon 60 Gallon 70 Gallon 80 Gallon** **Oil DHW EF:** 0.55 0.53 0.51 0.49 0.47 0.45
00419	**06/01/2013**	**HERS Index Target Procedure for Massachusetts (Version 3.1, Rev.00)**	**Change**	**Exhibit 2, Service Water Heating Systems – Tank size**
				Issue: Partners have noted that the Service Water Heating Systems Section of Exhibit 2 does not contain guidance on which tank size to model.
				Resolution: The System Type definition in the Service Water Heating Systems Section of Exhibit 2 will be revised as follows to address the tank size to be modeled: "System Type: Conventional storage water heater with tank size equal to that of Rated Home, unless Rated Home uses instantaneous water heater, in which case select 40 gallon tank for gas systems and 60 gallon tank for electric systems. Select applicable efficiency from below using tank size of Rated Home. If Rated Home uses instantaneous water heater, then select the efficiency of the 40 gallon tank for gas systems and 60 gallon tank for electric systems."
00181	**01/15/2012**	**National Program Requirements (Version 2.5, Rev. 04)**	**Change**	**Total duct leakage limits**
				Issue: Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the

				threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.
				Resolution: To address partners' difficulties meeting the total duct leakage limit, the total duct leakage limit for Version 3 will be revised as follows: "≤ 8 CFM25 per 100 $ft^2$of CFA"
00182	**01/15/2012**	**National Program Requirements (Version 2.5, Rev. 04)**	**Refinement**	**Exhibit 1 – Terminology related to Performance Path requirements**
				Issues: Partners have noted that the description of the Performance Path requirements in Exhibit 1 of this document do not align with the terminology used in other program documents.
				Resolution: To align the terminology used in this document with that used in other program documents, the Version 2 Performance Path summary will be revised to read, "Fixed HERS Index Target" and the Version 2.5 and Version 3 summary will be revised to read, "Variable HERS Index Target."
00183	**01/15/2012**	**National Program Requirements (Version 2.5, Rev. 04)**	**Refinement**	**Version 3 Training and Credentialing Timeline**
				Issue: Partners have asked for clarification about the dates by which builders must have completed the Version 3 Online Builder Orientation and HVAC contractors must be credentialed by an EPA-recognized oversight organization.
				Resolution: To more clearly explain the dates by which builders must have completed the Version 3 Online Builder Orientation and HVAC contractors must be credentialed by an EPA-recognized oversight organization, the third paragraph of the Version 2.5 National Program Requirements will be revised to read as follows: "While Raters will be required to complete Version 3 training provided by RESNET-accredited training providers by January 1, 2012 to qualify homes under Version 3, it is recommended, but not required, that Raters participate in this training prior to completing the inspection checklists under Version 2.5. Similarly, while builders will be required to complete training provided by EPA by January 1, 2012 and HVAC contractors will be required to complete training provided through industry associations by January 1, 2012to complete the HVAC System Quality Installation Contractor Checklist, it is recommended, but not required, that these parties also participate in this training prior to completing their respective Inspection Checklists"
00184	**01/15/2012**	**National Program Requirements (Version 2.5, Rev. 04)**	**Refinement**	**Prescriptive Path – ENERGY STAR qualified lighting**
				Issue: The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs.
				Resolution: To align terminology across programs, and to encourage partners to use ENERGY STAR qualified light fixtures in addition to qualified light bulbs, the Lighting & Appliances section will be revised to read in part: "ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined

				Qualifying Light Fixture Locations." This change also applies to the County-Level Reference Design for all Climate Zones and the Version 3 National Program Requirements.
00185	**01/15/2012**	**National Performance Path (Version 2)**	**Comment**	**Duct insulation levels**
				Issue: Partners have asked what minimum insulation level is required for supply ducts in unconditioned space.
				Resolution: While EPA recommends that all supply ducts in unconditioned space be insulated, there is no mandatory requirement to insulate them under Version 2 of the National Performance Path.
00281	**09/10/2012**	**National Performance Path (Version 2)**	**Comment**	**ENERGY STAR Products Section - Use of ENERGY STAR certified dishwashers**
				Issue: Partners have asked when a dishwasher will be required to be certified under the latest ENERGY STAR specification for dishwashers, Version 5.0, in order to be used as one of the five required ENERGY STAR products in ENERGY STAR Certified Homes.
				Resolution: Because dishwashers certified under the prior version of the specification will remain in stock by distributors for some time, partners are permitted to use any ENERGY STAR labeled dishwasher to meet the requirement to use five or more ENERGY STAR certified light fixtures, appliances, ceiling fans equipped with lighting fixtures, and/or ventilation fans.
00093	**07/25/2011**	**Thermal Bypass Inspection Checklist (Version 2)**	**Clarification**	**Use of infrared thermography**
				Issue: Partners have asked if infrared thermography can be used to complete the Thermal Bypass Checklist.
				Resolution: The Thermal Bypass Inspection Checklist permits alternative methods of meeting the checklist requirements to be used if the Provider deems them to be equivalent, or more stringent, than the Inspection Checklist guidelines. At their discretion, Providers are permitted to allow their Raters to use IR thermography to complete relevant portions of the Thermal Bypass Inspection Checklist for homes qualified under Version 2 of the program. EPA recommends, but does not require, that RESNET's Interim Guidelines for Thermographic Inspections of Buildings be used. Regardless of the method used, the Rater and Provider are the parties responsible for verifying that the requirements of the checklist have been completed. Note that EPA is evaluating its policy regarding the use of IR thermography for homes qualified under Version 2.5 and Version 3 of the program, given the increased requirements under these versions and the pending finalization of RESNET's Guidelines for Thermographic Inspections of Buildings.

00094	**07/25/2011**	**Thermal Bypass Inspection Checklist (Version 2)**	**Comment**	**Item 5.4 – Recessed lighting fixtures**
				Issue: EPA was asked whether insulation contact-rated lights that are not also rated as air-tight can fulfill the intent of Item 5.4, “ICAT labeled and sealed to drywall,” if all penetrations are sealed with heat-resistant tape or foam.
				Resolution: Light fixtures that are not ICAT rated but are IC rated and appear to be air tight by visual inspection or have product labeling that implies air tightness do not meet the intent of Item 5.4. A visual inspection for air tightness is not the equivalent to an ICAT label. Also, given the low cost differential between ICAT labeled fixtures and IC labeled fixtures that appear air tight, there is little justification for such an allowance.