

# Current ENERGY STAR Certified Homes Policy Record

## How to Use This Document

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

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

## Definitions

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

- ***Change*** – The addition, deletion, or modification of a program requirement. A change will typically result from a partner question or feedback indicating that EPA's original intent is not being met or from changes in relevant standards (e.g., ENERGY STAR labeled product requirements, NAECA standards, IECC codes). A change is the most significant type of edit for partners because it is likely to change the way that partners comply with the program.
- ***Clarification*** – The clarification of a program requirement, typically resulting from a partner question indicating confusion or ambiguity. Clarifications are not intended to significantly change the scope of the program guidelines, but rather to clarify the original intent of the requirement. A clarification is secondary in importance to a change; it should not significantly alter the way that most partners comply with the program.
- ***Refinement*** – A minor revision, such as an improved choice of words, a grammatical correction, or a correction to a typographical error. A refinement is the least important type of edit; it should have no impact on the way that partners comply with the program.
- ***Comment*** – A comment provided by EPA in response to a question, which results in no change to the program documents. This may occur, for example, if the question can be answered by referring to already established policy. Aside from the partner asking the question, such comments will typically have no impact on the way that partners comply with the program.
- ***Issue Under Review*** – An issue that has been submitted and that EPA is still evaluating. Once EPA has evaluated the issue, it will offer a resolution and reclassify the issue using one of the four categories above.

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ID	Log Date	Program Document	Classification	Topic
00298	06/01/2013	All National & Regional Program Documents	Comment	<b>All pages – Explanation of the dates listed in the footer of the program documents</b>
				<b>Issue:</b> Partners have asked for an explanation of the dates in the footer of the program documents.
				<p><b>Resolution:</b> Two dates are listed in the footer of the ENERGY STAR Certified Homes Program documents: the “Revised” date and the “Effective” date.</p> <p>The “Revised” date refers to when that particular document was last updated and released. It is purely informational.</p> <p>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.</p>
00282	12/31/2012	All National & Regional Program Documents	Comment	<b>ENERGY STAR certification of homes undergoing a ‘gut rehabilitation’</b>
				<b>Issue:</b> 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.
				<p><b>Resolution:</b> 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.</p> <p>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:</p> <ol style="list-style-type: none"> <li>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</li> </ol>

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				<p>Enclosure System Rater Checklist</p> <ol style="list-style-type: none"> <li>2) Replace or expose most systems, equipment, or components (e.g. HVAC and ducts, windows, insulation)</li> <li>3) Grade the site and/or provide drains/swales</li> <li>4) Implement below-grade moisture management strategies</li> </ol> <p>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.</p>
00299	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Refinement	<b>Qualifying Homes Section – Regional program requirements</b>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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:</p> <p>“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.</p> <p>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.”</p>
00300	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Clarification	<b>Prescriptive Path – Use of sampling protocol</b>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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.</p> <p>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.</p>

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				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.”
00301	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Clarification	<b>Prescriptive Path - Below-grade wall area for a home with multiple basement spaces</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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.
00302	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Comment	<b>Prescriptive &amp; Performance Path – Verification of infiltration rate in multifamily units</b>
				<b>Issue:</b> Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				<b>Resolution:</b> 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.
00008	07/25/2011	National Program Requirements (Version 3, Rev. 04)	Issue Under Review	<b>Performance Path – Modeling requirements for multifamily buildings</b>
				<b>Issue:</b> Partners have asked if each unit in a multifamily building must be modeled, or if either the entire building as a whole or some subset of units can be modeled under the Performance Path. Partners have also asked what HERS Index should be assigned to units that are not modeled, if it is acceptable to not model each unit.
				<b>Resolution:</b> [Issue under review.]

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00303	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Refinement	<b>Performance Path – Using software to determine the ENERGY STAR HERS Index Target</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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.
00304	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Refinement	<b>Step 2 of Performance Path - Reference to Thermal Enclosure System Rater Checklist</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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).”
00305	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Refinement	<b>Exhibit 2 – Redundant Section header and accompanying text removed</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> The Section header (i.e., “Mandatory Requirements for All ENERGY 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.

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00306	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Change	<b>Exhibit 2 &amp; Footnote 29 - Removal of Indoor airPLUS Checklist as compliance option</b>
				<p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.</p>
00307	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Clarification	<b>Exhibit 4 – Implementation timeline for national versus regional program requirements</b>
				<p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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."</p>
00308	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Refinement	<b>Exhibit 4 – Consolidation of Footnotes</b>
				<p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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</p>

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				<p>Footnote 15 will be referenced instead.</p> <p>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.</p> <p>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.</p> <p>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.</p>
00309	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Refinement	<p><b>Footnote 10 – Complete definition of ENERGY STAR Reference Design</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> To avoid redundancy, Footnote 10 will be removed.</p>
00421	09/23/2013	National Program Requirements (Version 3, Rev. 07)	Change	<p><b>Footnote 10d – Inclusion of Fenestration in Total UA Calculation</b></p>
				<p><b>Issue:</b> Partners have requested that fenestration performance be included in the calculation of total UA.</p> <p>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.</p>
				<p><b>Resolution:</b> 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.</p> <p>Footnote 10d of the will be revised as follows:</p> <p>“An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows:</p> <p>An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies.</p> <p>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</p>

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				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."
00310	06/01/2013	National Program Requirements (Version 3, Rev. 06)	Clarification	<b>Footnote 24 - Applicability of thermostats with 'Adaptive Recovery' technology</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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."
00311	06/01/2013	Inspection Checklists (Version 3, Rev. 06)	Refinement	<b>First Page of Each Checklist - Addition of zip code field</b>
				<b>Issue:</b> Partners have requested that a field be added for the home's zip code at the top of the first page of each of the four inspection checklists.
				<b>Resolution:</b> 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	<b>Cover Page – Using HERS software programs to verify compliance with Checklist Items</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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

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				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	<b>Cover Page &amp; Footnote 1 - Removal of Indoor airPLUS Checklist as compliance option</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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.
00017	07/25/2011	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Issue Under Review	<b>Use of infrared thermography</b>
				<b>Issue:</b> Partners have asked if infrared thermography can be used to complete the Thermal Enclosure System Rater Checklist.
				<b>Resolution:</b> [Issue under review.]
00422	09/23/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)	Change	<b>Item 2.1.2 &amp; Footnote 3d – Inclusion of Fenestration in Total UA Calculation</b>
				<b>Issue:</b> Partners have requested that fenestration performance be included in the calculation of total UA. Section 1 already requires fenestration to meet or exceed the component U-factor and SHGC requirements specified in the 2009 IECC – Table 402.1.1 for homes using the Performance Path, and even higher levels for homes using the Prescriptive Path. Therefore, the exclusion of fenestration from the total UA calculation only prevents fenestration that is better than code from contributing to the total UA of the home.
				<b>Resolution:</b> Fenestration (i.e., windows, doors, and skylights) will be included in the total UA calculation. While Section 1 still requires fenestration to meet or exceed the component U-factor and SHGC requirements specified in the 2009 IECC – Table 402.1.1, fenestration that does exceed code can be used to offset small decreases in insulation elsewhere in the thermal enclosure system.  The phrase "excluding fenestration and" will be removed from Item 2.1.2. In addition, Footnote 3d of the will be revised as follows:

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				<p>“An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows:</p> <p>An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies.</p> <p>A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that while ceiling and slab insulation and fenestration can be included in trade-off calculations, Items 4.1 through 4.3 and Section 1 of the Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method.”</p>
00111	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Issue Under Review	<p><b>Item 2.2 &amp; Item 4.4.1 – Reflective insulation</b></p> <p><b>Issue:</b> Partners have asked for permission to use radiant barrier house wrap as reflective insulation for the purpose of fulfilling Items 2.2 and 4.4.1. Policy Record Item 00024 did not allow this practice because the R-values for reflective insulation products rely on air spaces that are not integral to the products and because the ICC Evaluation Service typically classifies such products as weather barriers rather than as insulation products. In response to this guidance, partners have asked EPA to reevaluate the acceptability of reflective insulation products on the grounds that they reduce heat transfer when installed properly, they are treated as insulation products under the Federal Trade Commission 16 CFR Part 460 – Labeling and Advertising of Home Insulation, and there are applicable standards that govern their specification and installation (ASTM C727 and ASTM C1224).</p>
				<p><b>Resolution:</b> [Issue under review.]</p>
00314	06/01/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Comment	<p><b>Section 3 – Alignment of air barriers &amp; insulation for foundation walls w/ interior framing</b></p> <p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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.</p>
00315	06/01/2013	Thermal Enclosure	Comment	<p><b>Section 3 – Use of dense-packed cellulose</b></p>

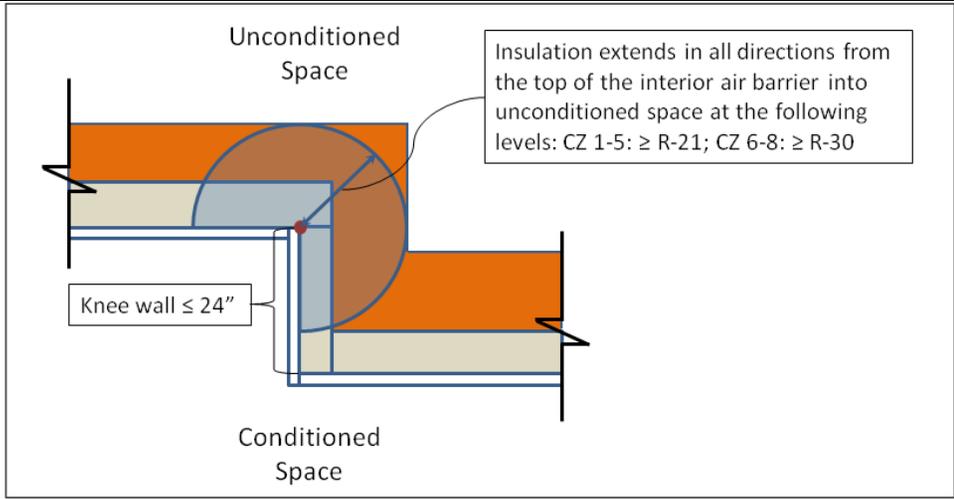
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		<b>System Rater Checklist (Version 3, Rev. 06)</b>	<p><b>Issue:</b> Partners have asked if dense-packed cellulose meets the intent of an air barrier per the requirements of Section 3 of this Checklist.</p> <p><b>Resolution:</b> As stated in Footnote 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.</p>
00428	05/01/2014	<b>Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)</b>	<p><b>Item 3.1 – Removal of interior air barrier requirement in most basements &amp; crawlspaces</b></p> <p><b>Issue:</b> Partners in Climate Zones 4 through 8 have expressed difficulty meeting the requirement in Item 3.1 to include an interior air barrier on all below-grade exterior walls. The primary challenge has been identifying cost-effective materials that meet a confluence of program, code, and manufacturer requirements addressing resistance to airflow, vapor permeability, flame spread index, smoke-developed index, and exposure limits for ultraviolet light.</p> <p><b>Resolution:</b> From a building-science perspective, the primary value of including an interior air barrier is to reduce the risk of condensation by preventing moisture-laden interior air from coming in contact with a cold surface (i.e., the interior face of the foundation wall). This is primarily a concern in the summer in Climate Zones 4 and 5 and in the winter in Climate Zones 6 through 8.</p> <p>Common considerations when selecting the interior air barrier material are: to avoid the use of Class 1 vapor retarders on the interior side of air-permeable insulation in exterior below-grade walls, per Item 1.6 of the Water Management System Builder Checklist; to ensure that code-mandated flame spread index and smoke-developed index requirements have been met; and to comply with manufacturer requirements limiting ultraviolet light exposure.</p> <p>A variety of materials and strategies can be used to meet this intent, as long as the specific properties of the material selected have been assessed for compliance with the requirements listed above. Several strategies that have been used successfully include adhering rigid or spray foam directly to the foundation wall; placing drywall on the interior side of a framed wall filled with air-permeable insulation; or, where UV exposure is limited, placing a house wrap product on the interior side of a framed wall filled with air-permeable insulation.</p> <p>However, it was not EPA’s intent to require the use of drywall finishes or foam insulation products in basements or crawlspaces as a prerequisite for ENERGY STAR certification under Version 3, and less expensive materials such as house wrap may not be permitted by code officials due to UV exposure. Therefore, to promote more consistent application of program requirements and address concerns about cost-effectiveness, the requirement in Item 3.1 to include an interior air barrier on all below-grade walls will be made a recommendation, rather than a requirement. Though it will no longer be a mandatory requirement, EPA highly</p>

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				<p>encourages partners to include this detail to reduce the risk of moisture-related issues. To reflect this change, and improve clarity, Footnote 7 and 10 will be merged and revised as follows:</p> <p>“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 following exceptions: air barriers recommended but not required in adiabatic walls in multifamily dwellings; and, an interior air barrier recommended but not required at rim / band joists, at basement walls, nor at crawlspace walls in Climate Zones 4 through 8. For the purpose of these exceptions, a basement or crawlspace is a space for which <math>\geq 40\%</math> of the total gross wall area is below-grade.”</p> <p>In addition, the guidance related to ceiling surfaces will be relocated into a separate Footnote: “All insulated ceiling surfaces, regardless of slope (e.g., cathedral ceilings, tray ceilings, conditioned attic roof decks, flat ceilings, sloped ceilings), must meet the requirements for ceilings.”</p>
00112	06/01/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Change	<b>Item 3.1.3 - Exemption from exterior air barrier for certain short attic knee walls</b>
				<p><b>Issue:</b> Partners have asked if the requirement for an exterior air barrier at attic knee walls applies to attic knee walls that are buried in attic floor insulation. Such attic knee walls may be present at small changes in ceiling height such as tray ceilings and soffits.</p>
				<p><b>Resolution:</b> 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.</p> <p>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: <math>\geq R-21</math>; CZ 6-8: <math>\geq R-30</math>. This policy is illustrated in the exhibit below:</p>

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				 <p data-bbox="877 727 1999 880">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.”</p>
00283	12/31/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Change	<p data-bbox="877 896 1999 938"><b>Item 4.2 - Slab edge insulation alternative for existing homes</b></p> <p data-bbox="877 945 1999 1107"><b>Issue:</b> 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.</p> <p data-bbox="877 1114 1999 1243"><b>Resolution:</b> 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.</p> <p data-bbox="877 1250 1999 1399">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,</p>

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				carpet).”
00316	06/01/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Change	<p><b>Item 4.4.5 – Improved clarity of reduced thermal bridging requirements</b></p> <p><b>Issue:</b> Partners have noted that Item 4.4.5 contains several requirements that may be misinterpreted:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> </ul> <p><b>Resolution:</b> The following clarifications will be made to Item 4.4.5 to reduce misinterpretations:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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 &amp; doors insulated <math>\geq</math> R-3 for 2x4 framing or equivalent cavity width, and <math>\geq</math> 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.</li> <li>• 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:</li> </ul>

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				<p>“Framing limited at all windows &amp; doors to one pair of king studs, plus one pair of jack studs per window opening to support the header and sill”</p> <p>Footnote 19 will be revised to read:</p> <p>“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.”</p>
00429	05/01/2014	Thermal Enclosure System Rater Checklist (Version 3, Rev. 07)	Change	<p><b>Item 4.4.5e – Removal of requirement for 24” o.c. spacing or R-20 cavity insulation in CZ 5</b></p> <p><b>Issue:</b> Partners have expressed difficulty complying with the requirements of Item 4.4.5e, which requires in part that homes in Climate Zones 5 through 8 using 2x6 framing place studs 24” on-center or, per Footnote 22, use 2x6 framing with 16” o.c. stud spacing plus R-20 cavity insulation.</p> <p>These partners have suggested that the use of 2x4 framing with 16” on-center spacing and R-13 or R-15 cavity insulation is still standard practice in many parts of Climate Zone 5. While this wall assembly would not satisfy the requirements of the ENERGY STAR Certified Homes program, upgrading a wall system to 2x6 framing is a significant investment in, and improvement of, the thermal enclosure system relative to this practice. Therefore, partners have suggested that the additional requirement for 24” on-center spacing or R-20 cavity insulation acts as a deterrent to upgrading to 2x6 framing.</p> <p>Furthermore, advanced insulation products capable of achieving R-20 cavity insulation still incur a substantial cost increase in markets where such products are not yet commonplace.</p> <p>Primarily for these two reasons, partners have requested that the requirement to use 24” on-center spacing or R-20 cavity insulation for walls with 2x6 framing be removed from Climate Zone 5. Note that no challenges have been identified to meeting this requirement in Climate Zones 6 through 8, where 2x6 framing is more commonplace.</p> <p><b>Resolution:</b> To address the partner concerns cited above about the requirements in Item 4.4.5e for homes with 2x6 framing in Climate Zone 5, this Item will be revised by removing these requirements only in Climate Zone 5. To reflect this change, the Climate Zones referenced in Item 4.4.5e will be revised as follows:</p> <p>“Minimum stud spacing of 16 in. o.c. for 2x4 framing in all Climate Zones and, in Climate Zones 6 through 8, 24 in. o.c. for 2x6 framing”.</p> <p>In addition, the Climate Zones in Footnote 22 will be revised as follows:</p> <p>“In Climate Zones 6 - 8, a minimum stud spacing of 16 in. o.c. is permitted to be used with 2x6 framing if <math>\geq</math> R-20.0 wall cavity insulation is achieved... However, all 2x6 framing with stud spacing of 16 in. o.c. in Climate Zones 6 - 8 shall have <math>\geq</math> R-20.0 wall cavity insulation installed regardless of any framing plan or alternative equivalent total UA calculation.”</p>

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				Note that despite this change, homes are still required to meet the insulation levels defined in Item 2.1. Therefore, homes using R-19 cavity insulation in Climate Zone 5 may need make improvements in the other insulated assemblies or the fenestration to meet Item 2.1.
00317	06/01/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Comment	<b>Section 5 – Use of drywall mud for air sealing not permitted</b>
				<b>Issue:</b> 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).
				<b>Resolution:</b> 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.
00318	06/01/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Clarification	<b>Item 5.1.1 – Air sealing where ducts transition from conditioned to unconditioned space</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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.
00319	06/01/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Change	<b>Item 5.2.1 – Sealing exemption for below-grade sill plates</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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”

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00284	12/31/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Change	<b>Item 5.2.1 - Sealing sill plates in existing structural masonry buildings</b>
				<b>Issue:</b> Partners certifying existing homes have asked if this Item is applicable to structural masonry and other monolithic wall assemblies.
				<p><b>Resolution:</b> 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.</p> <p>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.”</p> <p>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.</p>
00285	12/31/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Change	<b>Item 5.2.1 - Foam gasket beneath an existing sill plate</b>
				<b>Issue:</b> 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.
				<p><b>Resolution:</b> 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.</p> <p>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.”</p>
00286	12/31/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Clarification	<b>Item 5.2.7 - Sealing common walls in all multifamily buildings</b>
				<b>Issue:</b> 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

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				units” be sealed at all exterior boundaries.
				<b>Resolution:</b> 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	<p><b>Item 5.3.1 – Gasketing versus air-sealing doors adjacent to unconditioned space</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.”</p>
00321	06/01/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Comment	<p><b>Item 5.3.2 – Use of batt insulation for insulation attic access panels</b></p> <p><b>Issue:</b> Partners have asked if batt insulation may be glued to the attic access panel to meet the intent of Item 5.3.2.</p> <p><b>Resolution:</b> 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.</p>
00322	06/01/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Comment	<p><b>Item 5.3.2 – Access panels &amp; stairs that don’t separate conditioned from uncond. space</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> Item 5.3.2 is only applicable to attic access panels and drop-down stairs that separate conditioned from unconditioned space.</p>
00323	06/01/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Comment	<p><b>Footnote 7 - Grade I insulation installation at rim / band joists</b></p> <p><b>Issue:</b> Partners have expressed concern that if an interior air barrier is not included at band joists, RESNET-defined Grade 1 insulation installation cannot be achieved.</p> <p><b>Resolution:</b> For rim / band joists, RESNET states that the inclusion of interior sheathing or</p>

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				<p>enclosure material is optional when evaluating the insulation installation grade.</p> <p>The “Walls” Section of Appendix A, located on page A-11 of RESNET’s <i>2006 Mortgage Industry National Home Energy Rating System Standards</i> 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.”</p>
00324	06/01/2013	Thermal Enclosure System Rater Checklist (Version 3, Rev. 06)	Clarification	<p><b>Footnote 7 – Air barrier exemptions for rim and band joists</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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:</p> <p>“EPA highly recommends, but does not require, inclusion of an interior air barrier at rim / band joists in Climate Zones 4 through 8”</p>
00325	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Comment	<p><b>Section 1 – The use of exhaust-only whole-house ventilation systems and air inlets</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> An exhaust-only whole-house mechanical ventilation system is permitted to be used to meet the intent of Section 1.</p> <p>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.</p>
00326	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Comment	<p><b>Item 1.2 – Use of non-motorized damper on return side of HVAC system</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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</p>

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				<p>intake when not in use:</p> <p>“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).”</p>
00327	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Clarification	<p><b>Items 2.1 to 2.3 &amp; Footnote 8 - Allowable HVAC Design Methodologies &amp; Software</b></p> <p><b>Issue:</b> 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.</p> <p>Partners have also asked, specifically, may Trane’s TRACE software or Carrier’s HAP software be used.</p> <p><b>Resolution:</b> 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:</p> <p>“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, &amp; 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.”</p> <p>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.</p> <p>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: <a href="https://www.acca.org/industry/system-design/software">https://www.acca.org/industry/system-design/software</a>.</p> <p>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</p>

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				<p>STAR certified homes.</p> <p>Finally, EPA does permit an HVAC Quality Installation Training &amp; 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.</p>
00328	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Comment	<p><b>Items 2.2 and 2.17 – Applicability of ductwork design</b></p>
				<p><b>Issue:</b> Partners have asked when the “N/A” checkboxes next to Items 2.2 and 2.17 are permitted to be checked.</p>
				<p><b>Resolution:</b> 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.</p>
00329	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Comment	<p><b>Section 3 – Applicability to heat pump systems</b></p>
				<p><b>Issue:</b> Partners have asked if homes with heat pumps installed to serve the cooling load are required to complete Section 3.</p>
				<p><b>Resolution:</b> 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.</p>
00330	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Clarification	<p><b>Items 4.1 to 4.3, 7.10, &amp; Footnote 1 – Applicability to mini / multi-split, geothermal, &amp; hydronic systems</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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:</p> <p>“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).”</p> <p>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</p>

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			<p>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.</p> <p>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.</p> <p>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:</p> <p>Item 4.1 will be modified by adding a field for the efficiency of the ground-source heat pump in units of COP:</p> <p style="padding-left: 40px;">“AHRI Listed Efficiency: Air-Source _____ HSPF or Ground-Source _____ COP”</p> <p>Documenting the part-load performance of ground-source heat pumps will not be required in Items 4.2 &amp; 4.3. This will be addressed by adding a new Footnote to these items, which will state:</p> <p style="padding-left: 40px;">“Items 4.2 and 4.3 are not applicable to ground-source heat pumps.”</p> <p>In regards to commissioning tests, Section 6 &amp; 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:</p> <p style="padding-left: 40px;">“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.”</p> <p>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.</p> <p>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.</p> <p>In addition, to further improve the clarity and consistency with which the program requirements</p>
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				<p>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:</p> <p>“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.”</p>
00331	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Comment	<p><b>Section 6 and Section 7 – Temperature and pressure measurements</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> Systems using a TXV metering device are not required to complete the following Items:</p> <ul style="list-style-type: none"> <li>• 6.2 (Return-side air temperature)</li> <li>• 6.5 (Suction line pressure)</li> <li>• 6.6 (Suction line temperature)</li> </ul> <p>Systems using a fixed orifice metering device are not required to complete the following Items:</p> <ul style="list-style-type: none"> <li>• 6.3 (Liquid line pressure)</li> <li>• 6.4 (Liquid line temperature)</li> </ul> <p>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.</p> <p>For systems with a TXV metering device, this value is used to document if the outdoor ambient temperature at the condenser is <math>\leq 55</math> °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 &amp; 7.</p> <p>For systems with a fixed orifice metering device, this value is needed for Item 7.7 to determine the superheat goal.</p>
00332	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Refinement	<p><b>Item 8.1 – Elec. measurements required for both evaporator &amp; furnace air handler fans</b></p>
				<p><b>Issue:</b> Partners have noted some may misinterpret Item 8.1 as only applying to air handler fans for cooling systems.</p>
				<p><b>Resolution:</b> 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</p>

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				will be revised to read: “Evaporator or furnace air handler fan.”
00333	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Comment	<b>Item 12.1 – Use of internal versus external drain pans</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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.
00334	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Change	<b>Signature Block – Addition of line for credentialing organization</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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	<b>Footnote 1 – Alignment with Indoor airPLUS language</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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.”
00336	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version	Refinement	<b>Footnote 8 – Expiring exemption for ‘worst-case’ load calcs. &amp; room-level airflow design</b>
				<b>Issue:</b> 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.

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		3, Rev. 06)		<p><b>Resolution:</b> 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:</p> <p>“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, &amp; 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.</p> <p>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 <math>\leq 25\%</math>, 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 <math>\leq 25\%</math> variation and equipment selection shall be completed for each set of loads.</p> <p>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 <math>\leq 25\%</math> 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 <math>\leq 25\%</math> or 25 CFM variation and the duct design shall be completed for the average airflow of that set.”</p>
00337	06/01/2013	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 06)	Change	<p><b>Footnote 17 - Guidelines for ventilation systems that use HVAC air handler</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.</p> <p>As a result, Footnote 17 will be revised to read:</p>

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				<p>“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 cyclor) that reduces the ventilation run time by accounting for hours when HVAC system is heating or cooling the home.”</p>
00338	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Comment	<p><b>Item 2.5 – Insulating panned duct returns</b></p>
				<p><b>Issue:</b> Partners have asked if panned duct returns must be insulated.</p>
				<p><b>Resolution:</b> 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.</p>
00339	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Refinement	<p><b>Item 2.8 – Removal of Inches Water Column equivalent to Pascals</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> To avoid the use of unnecessary language, “(0.012 in. w.c.)” will be removed from Item 2.8.</p>
00340	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Change	<p><b>Section 4 – Addition of alternative option to test total duct leakage at ‘rough-in’</b></p>
				<p><b>Issue:</b> 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’.</p>
				<p><b>Resolution:</b> 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.</p> <p>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 <i>not</i> 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.</p> <p>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</p>

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				<p>alternative test option for the Rater to visually verify at final inspection that <u>all</u> duct boots are sealed to the finished surface.</p> <p>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'.</p> <p>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.</p> <p>To reflect these changes, Item 4.1 will be revised as follows:</p> <p>“4.1 Total Rater-measured duct leakage meets one of the following two options:</p> <p>4.1.1 <u>Rough-in</u>: ≤ 4 CFM25 per 100 sq. ft. of CFA with air handler and all ductwork, building cavities used as ductwork, &amp; duct boots installed. In addition, <u>all</u> duct boots sealed to finished surface, Rater-verified at final.</p> <p>4.1.2 <u>Final</u>: ≤ 8 CFM25 per 100 sq. ft. of CFA with the air handler and all ductwork, building cavities used as ductwork, duct boots, &amp; register grilles atop the finished surface (e.g., drywall, flooring) installed.”</p> <p>Additionally, a new Footnote will be added to 4.1.1:</p> <p>“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. <i>For homes permitted through 12/31/2013</i>: 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, &amp; duct boots installed.”</p> <p>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.</p>
00341	06/01/2013	HVAC System Quality Installation Rater Checklist	Comment	<p><b>Item 4.1 – Exemption for ducts in conditioned space</b></p> <p><b>Issue:</b> Partners have asked if total duct leakage testing can be waived when ducts are in conditioned space.</p>

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		(Version 3, Rev. 06)		<p><b>Resolution:</b> Footnote 18 of the HVAC System QI Rater Checklist states:  “Testing of duct leakage to the outside can be waived if all ducts &amp; 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.”</p> <p>Therefore, if the conditions listed in Footnote 18 are met, testing <i>duct leakage to the outside</i> can be waived. However, testing <i>total duct leakage</i> is a mandatory requirement for all certified homes, regardless of the home’s envelope leakage or HVAC equipment location.</p>
00342	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Change	<p><b>Item 4.1 – Revised duct leakage test methodology for registers atop carpet</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.</p> <p>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.</p> <p>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.”</p>
00430	05/01/2014	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 07)	Change	<p><b>Item 7.2 – Reduced ventilation air inlet height requirement in OH and TN</b></p> <p><b>Issue:</b> Partners in Ohio and Tennessee have noted that the ventilation air inlet height requirement of 4 ft. is greater than historical record snowfall depths in most of Ohio and Tennessee and have requested that the height be lowered to ease compliance for homes with HVAC equipment in crawlspaces or basements.</p> <p><b>Resolution:</b> Because reliable historical weather data indicates that snow depth in the states of</p>

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				<p>Ohio and Tennessee rarely exceeds a height of 2.5 feet, the minimum height for ventilation air inlets will be reduced to 2.5 feet for Climate Zone 5 and 2 feet for Climate Zone 4 in Ohio and Tennessee.</p> <p>To reflect this change, Footnote 24 will be revised to read:</p> <p>“Homes in NC, OH, and TN are permitted to use a minimum ventilation air inlet height of 2 ft. in Climate Zone 4 and 2.5 ft. in Climate Zone 5. Note that EPA is evaluating the potential to reduce inlet heights in other regions based upon historical snowfall data.”</p>
00343	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Change	<p><b>Item 8.1 – Alternative kitchen exhaust rate for Passive House (PHIUS+) certified homes</b></p> <p><b>Issue:</b> 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: <a href="http://www.passivehouse.us/passiveHouse/PHIUSservicesPHIUSplusCertification.html">http://www.passivehouse.us/passiveHouse/PHIUSservicesPHIUSplusCertification.html</a>.</p> <p>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.</p>
				<p><b>Resolution:</b> 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.</p> <p>A new Footnote will be added to Item 8.1 that reads as follows:</p> <p>“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.”</p>
00344	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Change	<p><b>Item 8.1 – Alternative compliance options for kitchen exhaust fan airflow rate</b></p> <p><b>Issue:</b> 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:</p> <ul style="list-style-type: none"> <li>• 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</li> </ul>

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				<p>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.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul> <p><b>Resolution:</b> 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.</p> <p>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.</p> <p>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 <math>\geq</math> 6 in. has been used, with rectangular to round transitions as needed.</p> <p>EPA will provide a one page document that describes this policy in greater detail at <a href="http://www.energystar.gov/newhomesresources">www.energystar.gov/newhomesresources</a>.</p> <p>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:</p> <p><i><u>“For homes permitted through 01/01/2014:</u></i> Homes are permitted to be certified without enforcement of this Item to provide partners with additional time to integrate this feature into their homes.</p> <p><i><u>“For homes permitted on or after 01/01/2014:</u></i> 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</p>
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				<p>0.25 IWC. If the rated airflow is unknown, <math>\geq 6</math> 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 <a href="http://www.energystar.gov/newhomesresources">www.energystar.gov/newhomesresources</a>.”</p> <p>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 <math>\geq 200</math> CFM will be removed from Footnote 29.</p>
00345	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Change	<p><b>Item 9.1 – Exemption from kitchen exhaust fan sone rating</b></p>
				<p><b>Issue:</b> Item 9.1 requires, in part, that an intermittent exhaust fan be rated at <math>\leq 3</math> 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.</p>
				<p><b>Resolution:</b> 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.</p> <p>To reflect this change, the heading of Section 9 will be revised to read:</p> <p>“Ventilation &amp; Exhaust Fan Ratings (Exemptions for Kitchen, HVAC, and Remote-Mounted Fans).”</p> <p>The first sentence of Footnote 31 will be revised to read as follows:</p> <p>“Fans exempted from this requirement include kitchen exhaust fans, HVAC air handler fans, and remote-mounted fans.”</p>
00346	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Comment	<p><b>Items 9.1 and 9.2 – Field-measured sone level not allowed in lieu of manufacturer rating</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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.</p>
00347	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Refinement	<p><b>Item 10.2 – Removal of non-applicable Footnote from this Item</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> To avoid referencing a Footnote that is not applicable, the reference to Footnote 33 will be removed from Item 10.2.</p>

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00348	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Clarification	<b>Item 10.3 – Applicability of CO testing to cooking ovens</b>
				<b>Issue:</b> Partners have asked if cooking ovens are included in the unvented gas appliances that must be tested for CO levels, per Item 10.3.
				<p><b>Resolution:</b> 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.</p> <p>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.”</p>
00149	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Issue Under Review	<b>Section 11 – Filtration for mechanical ventilation</b>
				<b>Issue:</b> Partners have asked if Section 11, related to filtration, applies to mechanical ventilation systems.
				<b>Resolution:</b> [Issue under review.]
00349	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Change	<b>Footnote 1 – Alignment with Indoor airPLUS language</b>
				<b>Issue:</b> 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.
				<p><b>Resolution:</b> 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.”</p>
00350	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Clarification	<b>Footnote 3 – Expiring exemption for deviation from ACCA Manual J design temperatures</b>
				<b>Issue:</b> 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

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				<p>this exemption, related to house plans with multiple configurations, is still applicable.</p> <p><b>Resolution:</b> 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:</p> <p>“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.”</p>
00351	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Refinement	<p><b>Footnote 14 – Expiring exemption for homes that don’t meet pressure balancing req.</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.</p>
00352	06/01/2013	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 06)	Refinement	<p><b>Footnote 18 - Inconsistency in alternative duct leakage allowance for small homes</b></p> <p><b>Issue:</b> 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.”</p> <p><b>Resolution:</b> 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:</p> <p>“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.”</p>
00353	06/01/2013	Water Management System Builder Checklist (Version	Comment	<p><b>Item 1.1 – Balconies are recommended, but not required, to be sloped</b></p> <p><b>Issue:</b> Partners have asked if balconies are required to comply with the sloping requirements of Item 1.1</p>

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		3, Rev. 06)		<p><b>Resolution:</b> 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.</p>
00287	12/31/2012	Water Management System Builder Checklist (Version 3, Rev. 06)	Clarification	<p><b>Item 1.1 &amp; Item 1.2, Footnote 4 - Use of swales and drains</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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....”</p>
00288	12/31/2012	Water Management System Builder Checklist (Version 3, Rev. 06)	Change	<p><b>Item 1.3 and 1.4 - Capillary break beneath existing slabs</b></p>
				<p><b>Issue:</b> 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</p>
				<p><b>Resolution:</b> 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:</p> <ul style="list-style-type: none"> <li>• Applying a permanent and protected Class 1 Vapor Retarder that provides drainage space (e.g. an air gap membrane); OR</li> <li>• Applying a permanent and protected layer of extruded polystyrene insulation with taped joints or equivalent Class II Vapor Retarder system; OR</li> <li>• Applying a surface-applied crystalline water-proofing treatment; OR</li> <li>• Applying an epoxy that is a Class I Vapor Retarder.</li> </ul> <p>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.</p> <p>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</p>

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				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	<b>Item 1.4.1 - Location of capillary break</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> A capillary break may be placed under any slab, even non-structural “rat slabs.”
00354	06/01/2013	Water Management System Builder Checklist (Version 3, Rev. 06)	Clarification	<b>Item 1.5 – Applicability to slabs on grade and vented crawlspace foundations</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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	<b>Item 1.5 - Finishing of exterior surface of existing below-grade walls</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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

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				<p>against these uneven wall surfaces.</p> <p>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.</p> <p>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.</p> <p>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)".</p> <p>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."</p> <p>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:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• 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.</li> </ul> <p>Note that no alternative compliance option is provided for existing below-grade wood-framed walls."</p>
00291	12/31/2012	Water Management System Builder Checklist (Version 3, Rev. 06)	Change	<b>Item 1.8 – Required location of drain tile and applicability to existing homes</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> The intent of this Item is to prevent water from collecting at the bottom of

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				<p>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.</p> <p>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.</p> <p>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.</p> <p>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:</p> <p>“Drain tile installed at the exterior side of footings of basement and crawlspace walls...”</p> <p>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:</p> <p>“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.”</p>
00355	06/01/2013	Water Management System Builder Checklist (Version 3, Rev. 06)	Comment	<p><b>Item 2.1 – Length of flashing</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.</p>

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00292	12/31/2012	Water Management System Builder Checklist (Version 3, Rev. 06)	Change	<p><b>Item 2.1 &amp; Item 2.2 - Flashing and drainage plane for existing structural masonry walls</b></p> <p><b>Issue:</b> Partners certifying existing homes have noted that the installation of flashing (and the associated drainage plane) at the bottom of exterior structural masonry walls is generally unfeasible and unnecessary.</p> <p><b>Resolution:</b> 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.</p> <p>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:</p> <p>"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."</p>
00293	12/31/2012	Water Management System Builder Checklist (Version 3, Rev. 06)	Refinement	<p><b>Item 2.2 and Footnote 8– Drainage plane: alignment with Indoor airPLUS language</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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:</p> <p>"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."</p> <p>Additionally, the phrase "shingled at horizontal joints and " will be added to Footnote 8 as follows:</p> <p>"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."</p>

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00294	12/31/2012	Water Management System Builder Checklist (Version 3, Rev. 06)	Refinement	<p><b>Item 2.3 - Flashing around window and door openings for structural masonry walls</b></p> <p><b>Issue:</b> Partners have requested that details be provided to clarify the flashing requirements for windows and doors in structural masonry walls.</p> <p><b>Resolution:</b> 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.</p> <p>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.”</p>
00295	12/31/2012	Water Management System Builder Checklist (Version 3, Rev. 06)	Refinement	<p><b>Item 3.1 – Step and kick-out flashing: alignment with Indoor airPLUS language</b></p> <p><b>Issue:</b> The Water Management System Builder Checklist is designed to align with EPA’s Indoor airPLUS (IAP) program. However, there is a slight disconnect between Item 3.1 of the ENERGY STAR Certified Homes program and the IAP program.</p> <p><b>Resolution:</b> 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 <math>\geq 4</math>” on wall surface above roof deck and integrated shingle-style with drainage plane above; boot / collar flashing at all roof penetrations.”</p>
00078	09/23/2013	Water Management System Builder Checklist (Version 3, Rev. 07)	Comment	<p><b>Item 3.2 – Gutters and downspouts</b></p> <p><b>Issue:</b> Partners have requested that EPA allow alternatives to gutters and downspouts where a complete drainage system consistent with the International Residential Code (e.g., sloped sod with sand and swales) has been provided.</p> <p><b>Resolution:</b> Since the time that this request was made, EPA has provided several specific alternatives and exemptions to gutters and downspouts. For this reason, these specific alternatives and exemptions shall be used to demonstrate compliance with Item 3.2. If partners have additional specific alternatives that they believe should be considered, then they should be submitted for review.</p> <p>Note that homes that are exempted from the requirements of Item 3.2 include homes with a slab-on-grade foundation, homes that have expansive or collapsible soils, and homes in Dry climates as shown in in 2009 IECC Figure 301.1. Additionally, several alternatives to Item 3.2 are listed in Footnote 14.</p>

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00296	12/31/2012	Water Management System Builder Checklist (Version 3, Rev. 06)	Refinement	<p><b>Item 3.2 &amp; Footnote 11 – Gutters &amp; downspouts: alignment w/ Indoor airPLUS language</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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:</p> <p>“For homes that don’t have a slab-on-grade foundation and do have expansive or collapsible soils, gutters &amp; downspouts provided that empty to lateral piping that discharges water on sloping final grade <math>\geq</math> 5 ft. from foundation, or to underground catchment system not connected to the foundation drain system that discharges water <math>\geq</math> 10 ft. from foundation. See Footnote for alternatives &amp; exemptions.”</p> <p>Additionally minor revisions to word choice will be made to Footnote 11 to improve consistency as follows:</p> <p>“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.”</p>
00420	07/23/2013	Water Management System Builder Checklist (Version 3, Rev. 07)	Change	<p><b>Item 3.2 – Additional alternative to gutters &amp; downspouts</b></p> <p><b>Issue:</b> Partners have expressed interest in additional alternatives to Item 3.2 and have proposed an underground flashing system where the water is directed at least five feet away from the foundation through the use of an impervious material below grade that slopes away from the building.</p> <p><b>Resolution:</b> EPA agrees that a below-grade rubber membrane that slopes away from the foundation could achieve the same intent as the gutter requirement in Item 3.2. To meet this intent, the membrane must be continuous and align with the foundation from grade level to at least 8 inches below grade and then slope <math>\geq</math> 0.5 in. per ft. away from the home for at least 5 ft. The membrane may align with the foundation directly or, if applicable, insulation or other materials that are in direct contact with the exterior foundation walls. To facilitate drainage, the soil above the membrane must be Group I Soils (i.e. well-drained ground or sand-gravel mixture soils), as defined by 2009 IRC Table R405.1. Up to 3 inches of non-Group I soil (e.g.,</p>

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				<p>top soil) is allowed on top of the Group I soil.</p> <p>To include this new alternative and improve clarity, Footnote 14 will be split into two footnotes and the second footnote will be revised to allow for the additional alternative. The first Footnote will read as follows:</p> <p>“The assessment of whether the soil is expansive or collapsible shall be completed by a certified hydrologist, soil scientist, or engineer.”</p> <p>The second Footnote, which will contain the new alternative, will read as follows:</p> <p>“Any of the following are permitted to be used as alternatives to Item 3.2: a) a roof design that deposits rainwater to a grade-level rock bed with a waterproof liner and a lateral drain pipe that meets discharge requirements per Item 3.2; b) a rainwater harvesting system that drains overflow to meet discharge requirements per Item 3.2; or c) a continuous rubber membrane (e.g. EPDM) that is aligned with the foundation wall from final grade to <math>\geq 8</math> in. below grade and then slopes <math>\geq 0.5</math> in. per ft. away from the home for at least 5 ft, with Group I Soils (as defined in Footnote 9) covering the membrane to within 3 in. of final grade.”</p>
00297	12/31/2012	Water Management System Builder Checklist (Version 3, Rev. 06)	Clarification	<p><b>Item 4.4. – Existing building materials with visible signs of water damage or mold</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.</p> <p>To clarify that the intent of this Item applies to both new and existing homes, Item 4.4 will be revised as follows:</p> <p>“Building materials with visible signs of water damage or mold <i>not</i> installed or allowed to remain.”</p>
00356	06/01/2013	Water Management System Builder Checklist (Version 3, Rev. 06)	Change	<p><b>Item 4.4 &amp; Footnote 14 – Exemption for sap-stain fungi</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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:</p> <p>“If mold is present, effort should be made to remove all visible signs of mold (e.g., by damp</p>



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		<b>Procedure for National Program Requirements (Version 3, Rev. 06)</b>		<p><b>Issue:</b> Partners have noted that the Service Water Heating Systems Section of Exhibit 2 does not contain guidance on which tank size to model.</p> <p><b>Resolution:</b> 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.”</p>
00361	06/01/2013	<b>County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)</b>	<b>Refinement</b>	<p><b>Qualifying Homes Section – Regional program requirements</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.”</p>
00362	06/01/2013	<b>County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)</b>	<b>Clarification</b>	<p><b>Prescriptive Path – Use of sampling protocol</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.</p>

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				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	<b>Prescriptive Path - Below-grade wall area for a home with multiple basement spaces</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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	<b>Prescriptive Path – Verification of infiltration rate in multifamily units</b>
				<b>Issue:</b> Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				<b>Resolution:</b> 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.
00365	06/01/2013	County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)	Refinement	<b>Exhibit 1 – Redundant Section header and accompanying text removed</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> The Section header (i.e., “Mandatory Requirements for All ENERGY 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	<b>Exhibit 1 &amp; Footnote 11 - Removal of Indoor airPLUS Checklist as compliance option</b>
				<b>Issue:</b> 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

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				of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate. <b>Resolution:</b> 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.
00367	06/01/2013	County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)	Refinement	<b>Exhibit 3 - Minimum Water Heater Efficiencies by Fuel Type and Tank Size</b> <b>Issue:</b> 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. <b>Resolution:</b> 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	<b>Exhibit 3 – Infiltration rate</b> <b>Issue:</b> 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. <b>Resolution:</b> 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.”
00369	06/01/2013	County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 06)	Clarification	<b>Footnote 22 - Applicability of thermostats with ‘Adaptive Recovery’ technology</b> <b>Issue:</b> 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. <b>Resolution:</b> 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’

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				technology to prevent excessive use of the heating element."
00423	09/23/2013	County-Level Reference Design Climate Zones 1-3 (Version 3, Rev. 07)	Change	<b>Footnote 18d - Inclusion of Fenestration in Total UA Calculation</b>
				<p><b>Issue:</b> Partners have requested that fenestration performance be included in the calculation of total UA.</p> <p>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.</p>
				<p><b>Resolution:</b> 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.</p> <p>Footnote 18d of the will be revised as follows:</p> <p>"An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows:</p> <p>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."</p>
00424	09/23/2013	County-Level Reference Design Climate Zones 4-8 (Version 3, Rev. 07)	Change	<b>Footnote 17d - Inclusion of Fenestration in Total UA Calculation</b>
				<p><b>Issue:</b> Partners have requested that fenestration performance be included in the calculation of total UA.</p> <p>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.</p>
				<p><b>Resolution:</b> Fenestration (i.e., windows, doors, and skylights) will be included in the total UA</p>

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				<p>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.</p> <p>Footnote 17d of the will be revised as follows:</p> <p>“An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows:</p> <p>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.”</p>
00370	06/01/2013	California Program Requirements (Version 3, Rev. 03)	Comment	<p><b>Prescriptive &amp; Performance Path – Verification of infiltration rate in multifamily units</b></p>
				<p><b>Issue:</b> Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.</p>
				<p><b>Resolution:</b> 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.</p>
00371	06/01/2013	California Program Requirements (Version 3, Rev. 03)	Change	<p><b>Exhibit 1 &amp; Footnote 10 - Removal of Indoor airPLUS Checklist as compliance option</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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</p>

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				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.
00372	06/01/2013	California Program Requirements (Version 2.5, Rev. 03)	Comment	<b>Prescriptive &amp; Performance Path – Verification of infiltration rate in multifamily units</b>
				<b>Issue:</b> Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				<b>Resolution:</b> 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	<b>Exhibit 1 &amp; Footnote 8 - Removal of Indoor airPLUS Checklist as compliance option</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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.
00374	06/01/2013	Florida Program Requirements (Version 3.1, Rev. 04)	Clarification	<b>Prescriptive Path – Use of sampling protocol</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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:

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				“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	<b>Prescriptive Path - Below-grade wall area for a home with multiple basement spaces</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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	<b>Prescriptive &amp; Performance Path – Verification of infiltration rate in multifamily units</b>
				<b>Issue:</b> Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				<b>Resolution:</b> 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	<b>Performance Path – Using software to determine the ENERGY STAR HERS Index Target</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> To clarify that the process of determining the ENERGY STAR HERS Index Target

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				<p>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.</p>
00378	06/01/2013	Florida Program Requirements (Version 3.1, Rev. 04)	Refinement	<p><b>Step 2 of Performance Path - Reference to Thermal Enclosure System Rater Checklist</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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).”</p>
00379	06/01/2013	Florida Program Requirements (Version 3.1, Rev. 04)	Refinement	<p><b>Exhibit 2 – Redundant Section header and accompanying text removed</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> The Section header (i.e., “Mandatory Requirements for All ENERGY 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.</p>
00380	06/01/2013	Florida Program Requirements (Version 3.1, Rev. 04)	Change	<p><b>Exhibit 2 &amp; Footnote 25 - Removal of Indoor airPLUS Checklist as compliance option</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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</p>

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				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.
00381	06/01/2013	Florida Program Requirements (Version 3.1, Rev. 04)	Refinement	<b>Exhibit 4 – Consolidation of Footnotes</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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.
00382	06/01/2013	Florida Program Requirements (Version 3.1, Rev. 04)	Refinement	<b>Footnote 10 – Complete definition of ENERGY STAR Reference Design</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> To avoid redundancy, Footnote 10 will be removed.
00425	09/23/2013	Florida Program Requirements (Version 3.1, Rev. 05)	Change	<b>Footnote 10d- Inclusion of Fenestration in Total UA Calculation</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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

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				<p>system.</p> <p>Footnote 10d of the will be revised as follows:</p> <p>“An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows:</p> <p>An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies.</p> <p>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.”</p>
00383	06/01/2013	Florida Program Requirements (Version 3.1, Rev. 04)	Clarification	<p><b>Footnote 21 - Applicability of thermostats with ‘Adaptive Recovery’ technology</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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).</p> <p>To clarify when this requirement applies, Footnote 21 will be revised as follows:</p> <p>"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."</p>
00384	06/01/2013	HERS Index Target Procedure for the State of Florida (Version 3.1, Rev. 04)	Refinement	<p><b>Exhibit 2, Service Water Heating Systems – Addition of oil water heater Energy Factors</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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:</p>

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				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	<b>Exhibit 2, Service Water Heating Systems – Tank size</b>
				<b>Issue:</b> Partners have noted that the Service Water Heating Systems Section of Exhibit 2 does not contain guidance on which tank size to model.
				<b>Resolution:</b> 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.”
00386	06/01/2013	Florida Program Requirements (Version 3, Rev. 04)	Clarification	<b>Prescriptive Path – Use of sampling protocol</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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	<b>Prescriptive &amp; Performance Path – Verification of infiltration rate in multifamily units</b>
				<b>Issue:</b> Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				<b>Resolution:</b> 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

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				<p>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.</p> <p>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.</p>
00388	06/01/2013	Florida Program Requirements (Version 3, Rev. 04)	Refinement	<p><b>Step 1 of Performance Path - Reference to Thermal Enclosure System Rater Checklist</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> 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).”</p>
00389	06/01/2013	Florida Program Requirements (Version 3, Rev. 04)	Refinement	<p><b>Exhibit 2 – Redundant Section header and accompanying text removed</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> The Section header (i.e., “Mandatory Requirements for All ENERGY 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.</p>
00390	06/01/2013	Florida Program Requirements (Version 3, Rev. 04)	Change	<p><b>Exhibit 2 &amp; Footnote 27 - Removal of Indoor airPLUS Checklist as compliance option</b></p>
				<p><b>Issue:</b> 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.</p>
				<p><b>Resolution:</b> Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home’s participation in the Indoor</p>

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				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	<b>Exhibit 3 – Consolidation of Footnotes</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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.
00426	09/23/2013	Florida Program Requirements (Version 3, Rev. 05)	Change	<b>Footnote 8d – Inclusion of Fenestration in Total UA Calculation</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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.

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				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."
00392	06/01/2013	Florida Program Requirements (Version 3, Rev. 04)	Clarification	<b>Footnote 12 - Applicability of thermostats with 'Adaptive Recovery' technology</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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."
00393	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)	Change	<b>Regional guidelines for Guam</b>
				<b>Issue:</b> Partners in Guam have noted that their climate is similar to that of Puerto Rico and requested that they be given the option to use the Puerto Rico Program Requirements rather than the National Program Requirements.
				<b>Resolution:</b> The following modifications will be made to the Hawaii and Puerto Rico Program Requirements so as to be applicable to Guam: <ul style="list-style-type: none"> <li>The document title and all section titles that include "Hawaii and Puerto Rico" will be revised to read "Guam, Hawaii, and Puerto Rico"</li> <li>The Envelope Section of Exhibit 1 will be revised to read: "Wall Insulation: <math>\geq</math> R-13 for Hawaii; None required for Puerto Rico and Guam"</li> <li>The Water Heater Section of Exhibit 1 will be revised to read:</li> </ul>

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				<p>“In HI, installed system meets Hawaii Solar Water Heater Standard In PR and GU, installed system is SRCC certified and achieves a solar fraction <math>\geq 0.90</math>”</p> <ul style="list-style-type: none"> <li>Because Guam will still be able to be certified under the National Program Requirements, Footnote 26 will be revised as follows: “Homes in Guam and Puerto Rico are eligible to earn the ENERGY STAR under the National Program Requirements. However, all homes certified under the National Program Requirements must follow the national implementation timeline.”</li> <li>Additionally, Exhibit 6 will be added to provide the implementation schedule for Guam:</li> </ul> <table border="1"> <thead> <tr> <th>Version</th> <th>Applicable to Homes with the Following Permit Date</th> <th>Version Description</th> </tr> </thead> <tbody> <tr> <td>Version 2.5</td> <td>Before 04/01/2014</td> <td>Version 3 Guam, Hawaii, &amp; Puerto Rico ENERGY STAR Reference Design. All sections of the Guam, Hawaii, &amp; Puerto Rico Version 3 Inspection Checklists completed but not enforced.</td> </tr> <tr> <td>Version 3</td> <td>On or after 04/01/2014</td> <td>Version 3 Guam, Hawaii, &amp; Puerto Rico ENERGY STAR Reference Design. All sections of the Guam, Hawaii, &amp; Puerto Rico Version 3 Inspection Checklists completed and enforced.</td> </tr> </tbody> </table>	Version	Applicable to Homes with the Following Permit Date	Version Description	Version 2.5	Before 04/01/2014	Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Guam, Hawaii, & Puerto Rico Version 3 Inspection Checklists completed but not enforced.	Version 3	On or after 04/01/2014	Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Guam, Hawaii, & Puerto Rico Version 3 Inspection Checklists completed and enforced.
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00394	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)	Clarification	<p><b>Prescriptive Path – Use of sampling protocol</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.</p> <p>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.”</p>									
00395	06/01/2013	Hawaii and Puerto	Clarification	<b>Prescriptive Path - Below-grade wall area for a home with multiple basement spaces</b>									

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		<b>Rico Program Requirements (Version 3, Rev. 01)</b>		<p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.</p>
00396	06/01/2013	<b>Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)</b>	<b>Comment</b>	<p><b>Prescriptive &amp; Performance Path – Verification of infiltration rate in multifamily units</b></p> <p><b>Issue:</b> Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.</p> <p><b>Resolution:</b> 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.</p> <p>With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of a home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.</p>
00397	06/01/2013	<b>Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)</b>	<b>Refinement</b>	<p><b>Performance Path – Using software to determine the ENERGY STAR HERS Index Target</b></p> <p><b>Issue:</b> Partners have noted that RESNET-accredited rating software programs should be used to determine the ENERGY STAR HERS Index Target.</p> <p><b>Resolution:</b> To clarify that the process of determining the ENERGY STAR HERS Index Target must be completed using a RESNET-accredited rating software program, the phrase “Use a RESNET-accredited Home Energy Rating software program...” will be added to the beginning of Step 1 of the Performance Path.</p>
00398	06/01/2013	<b>Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)</b>	<b>Change</b>	<p><b>Partnership, Training, and Credentialing Requirements</b></p> <p><b>Issue:</b> Partners have noted that the Hawaii and Puerto Rico Program Requirements do not contain the Section on Partnership, Training, and Credentialing Requirements found in the National Program Requirements. This Section in the National Program Requirements contains</p>

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				<p>important information for partners and should be included in the Hawaii and Puerto Rico Program Requirements.</p> <p><b>Resolution:</b> A Section on Partnership, Training, and Credentialing Requirements will be added below the ENERGY STAR Performance Path Section as follows:  “Partnership, Training, and Credentialing Requirements  Builders, Raters, and HVAC contractors must meet the following requirements prior to certifying homes under these guidelines:</p> <ul style="list-style-type: none"> <li>• 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 <a href="http://www.energystar.gov/homesPA">www.energystar.gov/homesPA</a>.</li> <li>• 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 <a href="http://www.energystar.gov/newhomesHVAC">www.energystar.gov/newhomesHVAC</a>.</li> <li>• Raters and Field Inspectors are required to complete Version 3 Training which can be found at <a href="http://www.energystar.gov/newhomestraining">www.energystar.gov/newhomestraining</a>.”</li> </ul>
00399	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)	Clarification	<b>Exhibit 1 – Infiltration rate</b>
				<b>Issue:</b> 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.
				<p><b>Resolution:</b> To ensure that envelope leakage is being determined by a Rater using a RESNET-approved testing protocol, the following Footnote will be added to the maximum allowable infiltration rate in the Envelope Section of Exhibit 1:  “Envelope leakage shall be determined by a rater using a RESNET-approved testing protocol.”</p>
00400	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 3, Rev. 01)	Change	<b>Exhibit 2 &amp; Footnote 23 - Removal of Indoor airPLUS Checklist as compliance option</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home’s participation in the Indoor airPLUS program, the phrase “(or Indoor airPLUS Verification Checklist)” will be removed from Exhibit 2 as will Footnote 23, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.

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00401	06/01/2013	Inspection Checklists for HI & PR (Version 3, Rev. 01)	Change	<b>Regional guidelines for Guam</b>
				<b>Issue:</b> Partners in Guam have noted that their climate is similar to that of Puerto Rico and requested that they be given the option to use the Inspection Checklists for HI & PR rather than the National Inspection Checklists.
				<b>Resolution:</b> The following modifications will be made to the Inspection Checklists for HI & PR so as to be applicable to Guam: <ul style="list-style-type: none"> <li>The document title and all section titles that include “Hawaii and Puerto Rico” will be revised to read “Guam, Hawaii, and Puerto Rico”</li> <li>Item 1.1 of The Thermal Comfort System Rater Checklist for HI &amp; PR will be revised to read: <p style="margin-left: 40px;">“≤ 16,000 btu / h per 1,000 ft<sup>2</sup> of conditioned floor area for Puerto Rico and Guam”</p> </li> </ul>
00402	06/01/2013	Inspection Checklists for HI & PR (Version 3, Rev. 01)	Refinement	<b>First Page of Each Checklist - Addition of zip code field</b>
				<b>Issue:</b> Partners have requested that a field be added for the home’s zip code at the top of the first page of each of the four inspection checklists.
				<b>Resolution:</b> A field will be added to the top of the first page of each of the four checklists to record the home’s zip code, for Raters to use if they so desire.
00403	06/01/2013	Inspection Checklists for HI & PR (Version 3, Rev. 01)	Comment	<b>Cover Page – Using HERS software programs to verify compliance with Checklist Items</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> HERS software programs may assess compliance with limited Checklist Items, such as the selection of minimum-allowed insulation levels, but none are capable of determining compliance with most of the Checklist Items (e.g., mandatory requirements that require visual inspection). It is the responsibility of the Rater, and not the software, to ensure that each Checklist Item has been verified. The Rater should not presume that a HERS software program has assessed compliance with any Checklist Item unless they receive explicit confirmation from the software provider.
00404	06/01/2013	Inspection Checklists for HI & PR (Version 3, Rev. 01)	Change	<b>Cover Page &amp; Footnote 1 - Removal of Indoor airPLUS Checklist as compliance option</b>
				<b>Issue:</b> 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

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				<p>of the ENERGY STAR Water Management System Builder Checklist are no longer appropriate.</p> <p><b>Resolution:</b> 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.</p>
00405	06/01/2013	HERS Index Target Procedure for Hawaii and Puerto Rico (Version 3, Rev.01)	Change	<p><b>Regional guidelines for Guam</b></p> <p><b>Issue:</b> Partners in Guam have noted that their climate is similar to that of Puerto Rico and requested that they be given the option to use the Puerto Rico Program Requirements rather than the National Program Requirements.</p> <p><b>Resolution:</b> The following modifications will be made to the HERS Index Target Procedure for Hawaii and Puerto Rico so as to be applicable to Guam:</p> <ul style="list-style-type: none"> <li>• The document title and all section titles that include "Hawaii and Puerto Rico" will be revised to read "Guam, Hawaii, and Puerto Rico"</li> <li>• All references to "Puerto Rico" in Exhibit 2 will be revised to read "Puerto Rico / Guam"</li> </ul>
00406	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)	Change	<p><b>Regional guidelines for Guam</b></p> <p><b>Issue:</b> Partners in Guam have noted that their climate is similar to that of Puerto Rico and requested that they be given the option to use the Puerto Rico Program Requirements rather than the National Program Requirements.</p> <p><b>Resolution:</b> The following modifications will be made to the Hawaii and Puerto Rico Program Requirements so as to be applicable to Guam:</p> <ul style="list-style-type: none"> <li>• The document title and all section titles that include "Hawaii and Puerto Rico" will be revised to read "Guam, Hawaii, and Puerto Rico"</li> <li>• The Envelope Section of Exhibit 1 will be revised to read: "Wall Insulation: <math>\geq</math> R-13 for Hawaii; None required for Puerto Rico and Guam"</li> <li>• The Water Heater Section of Exhibit 1 will be revised to read: "In HI, installed system meets Hawaii Solar Water Heater Standard In PR and GU, installed system is SRCC certified and achieves a solar fraction <math>\geq</math> 0.90"</li> <li>• Because Guam will still be able to be certified under the National Program Requirements, Footnote 26 will be revised as follows: "Homes in Guam and Puerto Rico are eligible to earn the ENERGY STAR under the</li> </ul>

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				<p>National Program Requirements. However, all homes certified under the National Program Requirements must follow the national implementation timeline.”</p> <ul style="list-style-type: none"> <li>Additionally, Exhibit 6 will be added to provide the implementation schedule for Guam:</li> </ul> <table border="1"> <thead> <tr> <th>Version</th> <th>Applicable to Homes with the Following Permit Date</th> <th>Version Description</th> </tr> </thead> <tbody> <tr> <td>Version 2.5</td> <td>Before 04/01/2014</td> <td>Version 3 Guam, Hawaii, &amp; Puerto Rico ENERGY STAR Reference Design. All sections of the Guam, Hawaii, &amp; Puerto Rico Version 3 Inspection Checklists completed but not enforced.</td> </tr> <tr> <td>Version 3</td> <td>On or after 04/01/2014</td> <td>Version 3 Guam, Hawaii, &amp; Puerto Rico ENERGY STAR Reference Design. All sections of the Guam, Hawaii, &amp; Puerto Rico Version 3 Inspection Checklists completed and enforced.</td> </tr> </tbody> </table>	Version	Applicable to Homes with the Following Permit Date	Version Description	Version 2.5	Before 04/01/2014	Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Guam, Hawaii, & Puerto Rico Version 3 Inspection Checklists completed but not enforced.	Version 3	On or after 04/01/2014	Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Guam, Hawaii, & Puerto Rico Version 3 Inspection Checklists completed and enforced.
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00407	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)	Clarification	<p><b>Prescriptive Path – Use of sampling protocol</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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.</p> <p>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.”</p>									
00408	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)	Clarification	<p><b>Prescriptive Path - Below-grade wall area for a home with multiple basement spaces</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> For a home that has multiple basement spaces, the gross surface area of the</p>									

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		01)		walls that are in contact with the ground shall be summed for all basement spaces. Then, the gross surface area of the walls that are in contact with the ambient outdoor air shall be summed for all basement spaces. These areas shall then be used to determine whether at least half of the basement wall area is below grade. This approach is most consistent with the methodology used for a home with a single basement space and, therefore, will be the simplest approach to implement.
00409	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)	Comment	<b>Prescriptive &amp; Performance Path – Verification of infiltration rate in multifamily units</b>
				<b>Issue:</b> Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				<b>Resolution:</b> The infiltration rate must be verified for multifamily dwelling units that are being certified using the Prescriptive Path. The infiltration rate must also be verified for multifamily dwelling units certified using the Performance Path, if the infiltration rate is designed to be below that of the RESNET HERS Reference Home. Note that the RESNET HERS Reference Home infiltration rate is often significantly higher than the rate specified in the ENERGY STAR Reference Design. Therefore, if the RESNET HERS Reference Home infiltration rate is used in lieu of testing, other energy efficiency features will likely be required to compensate.  With regards to the frequency with which the rate must be verified, Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol. Raters who do not operate under a Sampling Provider must verify these requirements in each certified home.
00410	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)	Refinement	<b>Performance Path – Using software to determine the ENERGY STAR HERS Index Target</b>
				<b>Issue:</b> Partners have noted that RESNET-accredited rating software programs should be used to determine the ENERGY STAR HERS Index Target.
				<b>Resolution:</b> To clarify that the process of determining the ENERGY STAR HERS Index Target must be completed using a RESNET-accredited rating software program, the phrase “Use a RESNET-accredited Home Energy Rating software program...” will be added to the beginning of Step 1 of the Performance Path.
00411	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)	Clarification	<b>Exhibit 1 – Infiltration rate</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> To ensure that envelope leakage is being determined by a Rater using a RESNET-approved testing protocol, the following Footnote will be added to the maximum allowable infiltration rate in the Envelope Section of Exhibit 1:

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				“Envelope leakage shall be determined by a rater using a RESNET-approved testing protocol.”
00412	06/01/2013	Hawaii and Puerto Rico Program Requirements (Version 2.5, Rev. 01)	Change	<b>Exhibit 2 &amp; Footnote 23 - Removal of Indoor airPLUS Checklist as compliance option</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> Because all ENERGY STAR certified homes must complete the Water Management System Builder Checklist regardless of the home’s participation in the Indoor airPLUS program, the phrase “(or Indoor airPLUS Verification Checklist)” will be removed from Exhibit 2 as will Footnote 23, which describes how to use an Indoor airPLUS Verification Checklist as an alternative to the Water Management System Builder Checklist.
00413	06/01/2013	Massachusetts Program Requirements (Version 3.1, Rev. 00)	Clarification	<b>Prescriptive Path – Use of sampling protocol</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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	<b>Prescriptive Path - Below-grade wall area for a home with multiple basement spaces</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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

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				implement.
00415	06/01/2013	Massachusetts Program Requirements (Version 3.1, Rev. 00)	Comment	<b>Prescriptive &amp; Performance Path – Verification of infiltration rate in multifamily units</b>
				<b>Issue:</b> Partners have asked whether the infiltration rate must be verified in multifamily dwelling units and, if so, how frequently they must be verified.
				<b>Resolution:</b> 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	<b>Exhibit 2 &amp; Footnote 21 - Removal of Indoor airPLUS Checklist as compliance option</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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	<b>Footnote 14d – Inclusion of Fenestration in Total UA Calculation</b>
				<b>Issue:</b> 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.
				<b>Resolution:</b> 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

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				<p>can be used to offset small decreases in insulation elsewhere in the thermal enclosure system. Footnote 14d of the will be revised as follows:</p> <p>“An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows:</p> <p>An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies.</p> <p>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.”</p>
00417	06/01/2013	Massachusetts Program Requirements (Version 3.1, Rev. 00)	Clarification	<p><b>Footnote 18 - Applicability of thermostats with ‘Adaptive Recovery’ technology</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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).</p> <p>To clarify when this requirement applies, Footnote 18 will be revised as follows:</p> <p>"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."</p>
00418	06/01/2013	HERS Index Target Procedure for Massachusetts (Version 3.1, Rev.00)	Refinement	<p><b>Exhibit 2, Service Water Heating Systems – Addition of oil water heater Energy Factors</b></p> <p><b>Issue:</b> 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.</p> <p><b>Resolution:</b> 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:</p>

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				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	<b>Exhibit 2, Service Water Heating Systems – Tank size</b>
				<b>Issue:</b> Partners have noted that the Service Water Heating Systems Section of Exhibit 2 does not contain guidance on which tank size to model.
				<b>Resolution:</b> 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.”