

# Current ENERGY STAR Qualified 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.

For Version 2.5 and Version 3, 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 guidelines. 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
00097	01/15/2012	National Program Requirements (Version 3, Rev. 04)	Clarification	<p data-bbox="886 269 2003 302"><b>Partnership, Training, and Credentialing Requirements</b></p> <p data-bbox="886 318 2003 407"><b>Issue:</b> Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.</p> <p data-bbox="886 423 2003 545"><b>Resolution:</b> A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the “ENERGY STAR Performance Path” section and read as follows:  “Partnership, Training, and Credentialing Requirements  Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying homes under these guidelines:</p> <ul data-bbox="928 659 2003 919" 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.resnet.us/energystar">www.resnet.us/energystar</a>.”</li> </ul>
00098	01/15/2012	National Program Requirements (Version 3, Rev. 04)	Comment	<p data-bbox="886 945 2003 1002"><b>Prescriptive &amp; Performance Path - Dual-fuel air-source heat pump efficiency requirements</b></p> <p data-bbox="886 1018 2003 1075"><b>Issue:</b> Partners have asked what minimum efficiency requirements must be met when installing a dual-fuel air-source heat pump.</p> <p data-bbox="886 1091 2003 1213"><b>Resolution:</b> If a home is earning the ENERGY STAR using the Prescriptive Path and a dual-fuel air-source heat pump heating system is being installed in the home, the heat pump must meet the minimum efficiency requirements specified in Exhibit 1. Additionally, the dual-fuel backup component must be ENERGY STAR qualified.</p> <p data-bbox="886 1229 2003 1375">If the home is earning the ENERGY STAR using the Performance Path, there is no minimum efficiency level that the HVAC equipment must meet. However, if an HVAC system is installed with an efficiency level lower than that specified by Exhibit 1, then other efficiency upgrades may be needed in order to achieve the ENERGY STAR HERS Index Target that must be met for the home to earn the ENERGY STAR.</p>

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00008	07/25/2011	National Program Requirements (Version 3, Rev. 04)	Issue Under Review	<b>Performance Path – Modeling requirements for multifamily buildings</b>
				<p><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.</p> <p><b>Resolution:</b> [Issue under review.]</p>
00099	01/15/2012	National Program Requirements (Version 3, Rev. 04)	Clarification	<b>Prescriptive Path – Required efficiency of gas furnaces</b>
				<p><b>Issue:</b> The minimum efficiency requirements for ENERGY STAR qualified gas furnaces manufactured after 02/01/2012 will increase from 90 AFUE to 95 AFUE for the U.S. North region, defined as states with population-weighted Heating Degree Days <math>\geq</math> 5000. The <a href="#">ENERGY STAR Product Specification for Furnaces</a>, Version 3.0, specifies which states are included in the U.S. North region.</p> <p>The ENERGY STAR Reference Design defined in Exhibit 1 currently requires an ENERGY STAR qualified 90 AFUE furnace in Climate Zones 4 through 8. Partners have asked how this will be modified to account for the new ENERGY STAR product specification for furnaces.</p> <p><b>Resolution:</b> The ENERGY STAR for Homes guidelines will not be modified at this time to align with the more stringent efficiency level required in the new ENERGY STAR product specification for furnaces. The minimum efficiency level specified for gas furnaces in Climate Zones 4 through 8 under the Prescriptive Path and Exhibit 2 of the ENERGY STAR HERS Index Target Procedure will remain at 90 AFUE. The minimum requirement for gas furnaces in Climate Zones 4 through 8 in Exhibit 1 of the National Program Requirements will be revised by removing the phrase “ENERGY STAR qualified”.</p>
00100	01/15/2012	National Program Requirements (Version 3, Rev. 04)	Change	<b>Prescriptive Path - Total duct leakage limits</b>
				<p><b>Issue:</b> Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.</p> <p><b>Resolution:</b> To address partners’ difficulties meeting the total duct leakage limit, the total duct leakage limit will be revised as follows: “Total duct leakage shall be <math>\leq</math> 8 CFM25 per 100 sq. ft. of conditioned area.” Because the total duct leakage threshold will not be changed for homes</p>

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				<p>with less than 1,200 sq. ft. of conditioned floor area, there will no longer be a different threshold for those homes.</p> <p>Footnote 24 will be shortened to only include guidance related to duct leakage testing protocols: "Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol only after all components of the system have been installed (e.g., air handler and register grilles). Leakage limits shall be assessed on a per-system, rather than per-home, basis."</p> <p>Remaining guidance related to testing duct leakage to the outside has been will be consolidated in Footnote 25, which will read as follows:</p> <p>"For homes that have <math>\leq</math> 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be <math>\leq</math> 5 CFM25 per 100 sq. ft. of conditioned floor area. 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. Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is <math>\leq</math> 4 CFM25 per 100 sq. ft. of conditioned floor area, or <math>\leq</math> 5 CFM25 per 100 sq. ft. of conditioned floor area for homes that have less than 1,200 sq. ft. of conditioned floor area."</p>
00101	01/15/2012	National Program Requirements (Version 3, Rev. 04)	Comment	<b>Prescriptive Path – Minimum water heater efficiency requirements</b>
				<b>Issue:</b> Partners have asked if, when a solar water heater is used as the primary water heating system and an electric or gas system is used as a backup system under the Prescriptive Path, both the primary and backup systems must meet the required minimum efficiency levels.
				<b>Resolution:</b> When qualifying a home under the Prescriptive Path, all water heating systems, including backup systems, must meet the minimum efficiency requirements.
00102	01/15/2012	National Program Requirements (Version 3, Rev. 04)	Refinement	<b>Prescriptive Path – ENERGY STAR qualified lighting</b>
				<b>Issue:</b> The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.
				<b>Resolution:</b> To align terminology across programs, and to encourage partners to use ENERGY STAR qualified light fixtures in addition to qualified light bulbs, the Lighting & Appliances section will be revised to read in part: "ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations."
00103	01/15/2012	National Program Requirements	Comment	<b>Exhibit 4 – Implementation timeline for projects funded through multiple low-income housing agencies</b>

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		(Version 3, Rev. 04)		<p><b>Issue:</b> Partners have asked if, when a low-income project is financed through several low-income housing agencies, each one of the agencies must receive the application for funding prior to April 1<sup>st</sup>, 2011 for the project to be eligible to earn the ENERGY STAR under Version 2 of the guidelines.</p> <p><b>Resolution:</b> If at least one of the low-income housing agencies received the application for funding by April 1<sup>st</sup>, 2011, then the project is eligible to earn the ENERGY STAR under the Version 2 guidelines until January 1, 2013.</p>
00104	01/15/2012	National Program Requirements (Version 3, Rev. 04)	Clarification	<p><b>Performance Path - Conflicts with code or other external guidelines</b></p> <p><b>Issue:</b> Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?</p> <p><b>Resolution:</b> If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows:</p> <ol style="list-style-type: none"> <li>a. "In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;</li> <li>b. "In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement."</li> </ol>
00105	01/15/2012	National Program Requirements (Version 3, Rev. 04)	Clarification	<p><b>Footnote 10d – Minimum insulation requirements when using a total UA calculation</b></p> <p><b>Issue:</b> Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that "while ceiling and slab insulation can be included</p>

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				<p>in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated.”</p> <p><b>Resolution:</b> To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 10d will be revised as follows: “...Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated...”</p>
00106	01/15/2012	Inspection Checklists (Version 3, Rev. 04)	Clarification	<p><b>Conflicts with code or other external guidelines</b></p> <p><b>Issue:</b> Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home’s HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?</p> <p><b>Resolution:</b> If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature.</p> <p>The first page of the Inspection Checklists describes how conflicts with code requirements or other guidance are to be handled and will be revised to ensure consistent implementation among partners. The revised guidance will read:</p> <p>“Where requirements of the local codes, manufacturers’ installation instructions, engineering documents, or regional ENERGY STAR programs overlap with the requirements of these guidelines, EPA offers the following guidance:</p> <ol style="list-style-type: none"> <li>a. “In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;</li> <li>b. “In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target (or equivalent target for regional program</li> </ol>

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				requirements). Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement.”
00107	01/15/2012	Inspection Checklists (Version 3, Rev. 04)	Comment	<b>Definition of Applicable Sampling Protocol</b>
				<b>Issue:</b> Partners have asked if Chapter 6 of RESNET’s Mortgage Industry National Home Energy Rating System Standards still defines the protocols that must be followed to qualify homes through sampling under Version 3.
				<b>Resolution:</b> The sampling protocols described in Chapter 6 of RESNET’s Mortgage Industry National Home Energy Rating System Standards must be followed if sampling is used to qualify homes. Note that the use of sampling is not permitted for the HVAC System Quality Installation Contractor Checklist or the Water Management System Builder Checklist.
00108	01/15/2012	Inspection Checklists (Version 3, Rev. 04)	Clarification	<b>Verifying HVAC contractor credentials</b>
				<b>Issue:</b> Partners have asked how Raters can verify that an HVAC contractor holds credentials necessary to complete the HVAC System Quality Installation Contractor Checklist, per the requirement on page 1 of the Inspection Checklists.
				<b>Resolution:</b> Raters can verify the credentialed status of an HVAC contractor using the EPA-maintained list of recognized HVAC credentialing organizations at <a href="http://www.energystar.gov/newhomeshvac">www.energystar.gov/newhomeshvac</a> . A new footnote will be added to the Inspection Checklists that reads: “HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this credentialing process and links to H-QUITOs, which maintain lists of credentialed contractors, can be found at <a href="http://www.energystar.gov/newhomesHVAC">www.energystar.gov/newhomesHVAC</a> .”
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.]
00109	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<b>Item 1.2 – Minimum allowed performance for fenestration</b>
				<b>Issue:</b> Partners have asked if windows that do not comply with Item 1.2 may be used as long as the total building thermal envelope UA meets the requirements of the 2009 IECC.
				<b>Resolution:</b> This Checklist promotes high-performance thermal enclosure systems in part by limiting the extent to which components can be downgraded when using trade-offs. Because windows typically have high U-factors compared to insulated walls, they are especially prone to

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				<p>compromising the thermal enclosure system.</p> <p>Homes qualified under the Performance Path are required to have a fenestration package that meets or exceeds the component U-factor and SHGC requirements specified in the 2009 IECC Table 402.1.1. Footnote 2 of the Checklist describes several exceptions to these requirements, however. The following exceptions relate to fenestration U-factors:</p> <p>“a) An area-weighted average of fenestration products shall be permitted to satisfy the U-factor requirements;</p> <p>“c) 15 square feet of glazed fenestration per dwelling unit shall be exempt from the U-factor and SHGC requirements, and shall be excluded from area-weighted averages calculated using a) and b) above;”</p> <p>Using this provision, the U-factors of different fenestration products may be averaged to meet 2009 IECC requirements, but fenestration characteristics may not be traded off with other components of the building envelope.</p> <p>Homes qualified under the Prescriptive Path are required to have a fenestration package that meets or exceeds ENERGY STAR requirements, which are more rigorous than the requirements of the 2009 IECC.</p>
00110	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Change	<p><b>Item 2.1 – Insulation level tradeoffs for low infiltration rates</b></p> <p><b>Issue:</b> Several partners have noted that they use advanced construction practices and materials that result in infiltration rates significantly below the ENERGY STAR Reference Design values. Because reduced infiltration rates can improve the thermal enclosure system by reducing convective gains and losses, partners have asked whether such techniques are permitted to be used in exchange for insulation levels less than those required by Item 2.1</p> <p><b>Resolution:</b> Item 2.1 is intended to ensure that every qualified home includes a complete thermal enclosure system with improved performance relative to standard practice. Partners now have an additional option to meet the intent of Item 2.1 by achieving meaningful reductions in infiltration relative to the ENERGY STAR Reference Design in exchange for meeting less stringent insulation requirements. Homes that achieve <math>\leq 50\%</math> of the infiltration rate defined for their Climate Zone in Exhibit 1 of the National Program Requirements are permitted to use insulation levels below the 2009 IECC requirements, with some limitations. Item 2.1 will be revised as follows:</p> <p>“Ceiling, wall, floor, and slab insulation levels shall comply with one of the following options:</p> <p>“2.1.1 Meet or exceed 2009 IECC levels <b>OR</b>;</p> <p>“2.1.2 Achieve <math>\leq 133\%</math> of the total UA resulting from the U-factors in 2009 IECC Table 402.1.3, excluding fenestration and per guidance in Footnote 3d, <b>AND</b> home shall achieve <math>\leq 50\%</math> of the infiltration rate in Exhibit 1 of the National Program</p>

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				Requirements.”
00111	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Issue Under Review	<b>Item 2.2 &amp; Item 4.4.1 – Reflective insulation</b>
				<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>
00112	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Issue Under Review	<b>Section 3 – Exterior air barriers on attic kneewalls</b>
				<p><b>Issue:</b> Partners have asked if an exterior air barrier must be installed on attic kneewalls if the ceiling insulation depth is higher than the kneewall.</p> <p><b>Resolution:</b> [Issue under review.]</p>
00113	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<b>Section 3 – Ceiling air barrier location</b>
				<p><b>Issue:</b> Partners have asked where air barriers are required to be installed when insulating an attic roof deck with fiberglass batts.</p> <p><b>Resolution:</b> Section 3 explains that air barriers are required to be fully aligned with insulation “at interior or exterior surface of ceilings in Climate Zones 1-3; at interior surface of ceilings in Climate Zone 4-8.”</p> <p>If fiberglass batts are installed to maintain contact with the roof deck, then the roof deck is the exterior air barrier. In Climate Zones 1-3, no interior air barrier is required, but in Climate Zones 4-8, an interior air barrier must be installed.</p>
00114	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<b>Item 3.1.1 – Use of Thermoply as an air barrier</b>
				<p><b>Issue:</b> Partners have asked if Thermoply can be used as an air barrier behind tubs and showers to meet the intent of Item 3.1.1, which requires fully-aligned air barriers at walls behind showers and tubs.</p> <p><b>Resolution:</b> Rigid air barriers, including Thermoply, may be used to comply with Item 3.1.1, per Footnote 6: “For purposes of this Checklist, an air barrier is defined as any durable solid</p>

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				<p>material that blocks air flow between conditioned space and unconditioned space, including necessary sealing to block excessive air flow at edges and seams and adequate support to resist positive and negative pressures without displacement or damage.”</p> <p>Note, however, that Thermoply does not satisfy the intent of Item 4.2 of the Water Management System Builder Checklist, which requires that cement board or equivalent moisture-resistant backing material be installed on all walls behind tub and shower enclosures composed of tile or panel assemblies with caulked joints. Therefore, if Thermoply is used where such enclosures are located adjacent to exterior walls, it must be coupled with a moisture-resistant backing material to meet the intent of both Items.</p>
00115	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<p><b>Section 4 – Friction-fitted batts in attic bays</b></p>
				<p><b>Issue:</b> Partners have asked whether friction-fitted batts can be installed in attic bays or if a continuous layer of insulation must also be installed to reduce thermal bridging.</p>
				<p><b>Resolution:</b> There is no requirement to reduce thermal bridging in attics except at attic eaves and under attic platforms. Therefore, friction-fitted batts may be installed in attic bays. It is recommended, but not required, that insulation be used to help reduce thermal bridging through ceiling joists or other framing members at the ceiling interface.</p>
00116	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Change	<p><b>Item 4.1 – Reduced thermal bridging at attic eaves</b></p>
				<p><b>Issue:</b> Partners have advised EPA that, while many homes permitted beginning January 1, 2012 will be able to fully comply with Item 4.1, plans for certain homes will need to be redesigned in part or in full to achieve compliance and that this redesign process will require additional time.</p> <p>Further complicating the implementation timeline for this Item is the fact that several key structural parameters of Southern Pine lumber are being reassessed by the American Lumber Standards Committee. Changes to these values would necessitate a redesign of many roof systems.</p> <p>Therefore, an extended implementation timeline for this Item would allow for a single redesign process to both provide adequate clearance for insulation and accommodate the latest structural parameters.</p> <p>Furthermore, partners have noted that requiring “Grade I” insulation in place of “uncompressed” insulation will better align with established terminology and more clearly convey the intent of this Item.</p>
				<p><b>Resolution:</b> Based on partner feedback about the feasibility of implementing Item 4.1, full compliance with this requirement will not be required for homes permitted before January 1, 2013.</p>
				<p>Homes permitted before that date in Climate Zones 1 through 5 shall instead have at least R-</p>

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

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00118	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Clarification	<p><b>Item 4.4.5b – Uninsulated full-depth headers</b></p> <p><b>Issue:</b> Item 4.4.5b and Footnote 18 require that all headers above doors and windows be insulated, except where a framing plan provided by the builder, architect, designer, or engineer indicates that full-depth solid headers are the only acceptable option.</p> <p>Partners have asked if uninsulated full-depth headers can be used to meet the intent of Item 4.4.5b even if other header options are viable. Because full-depth headers can bear larger loads, the height of these products may be less than that of headers that are not full-depth, particularly for engineered wood products. As a result, the wall area available for full-depth insulation may be increased, even though the header itself is not insulated.</p> <p><b>Resolution:</b> Uninsulated full-depth headers are permitted to be used to meet the intent of Item 4.4.5b, even if other header options are viable. Footnote 18, which clarifies Item 4.4.5b, will be revised to read as follows:</p> <p>"Header insulation shall be <math>\geq</math> R-3 for wall assemblies with 2x4 framing, or equivalent cavity width, and <math>\geq</math> R-5 for all other assemblies (e.g., with 2x6 framing). Compliance options include continuous rigid insulation sheathing, SIP headers, other prefabricated insulated headers, single-member or two-member headers with insulation either in between or on one side, or an equivalent assembly, except where a framing plan provided by the builder, architect, designer, or engineer indicates that full-depth solid headers are to be used. The Rater need not evaluate the structural necessity of the details in the framing plan to qualify the home. Also, the framing plan need only encompass the details in question and not necessarily the entire home. R-value requirement refers to manufacturer's nominal insulation value."</p>
00119	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<p><b>Item 4.4.5d – Compressed insulation behind ladder framing</b></p> <p><b>Issue:</b> Partners have asked if the intent of Item 4.4.5d ("All interior / exterior wall intersections insulated to the same R-value as the rest of the exterior wall") is satisfied even when ladder framing compresses the insulation at the interior/exterior wall intersection. For example, if "2x" framing is used to create the ladder and the "2x" dimension is oriented horizontally, then the insulation will be compressed by 1.5 in. and its effective R-value reduced below that of the rest of the exterior wall insulation.</p> <p><b>Resolution:</b> Installing insulation with the same nominal R-value as the insulation in the rest of the exterior wall meets the requirements of Item 4.4.5d, even if it is compressed behind ladder framing. Note, however, that the overall exterior wall must still meet the insulation installation requirement of Item 2.2.</p> <p>The intent of this requirement is to ensure that insulation is installed in the cavity created by the intersection of an interior wall and an exterior wall. Typically, this intersection is filled entirely with vertical studs or is left completely uninsulated, which creates a significant thermal bridge. Insulation installed with the same nominal R-value as the rest of the exterior wall will generally</p>

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				represent an improvement over typical building practice, even if some compression occurs.
00120	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<b>Section 5 – Thickness requirements for foam used for air sealing</b>
				<b>Issue:</b> Partners have asked if foam used for air sealing any of the penetrations, cracks, and openings listed in Section 5 must meet the minimum thickness requirements established by Footnote 6 for open- and closed-cell foam to be used as air barriers.
				<b>Resolution:</b> Footnote 6 applies to Section 3, Fully-Aligned Air Barriers, not to Section 5, Air Sealing. Foam does not need to meet the minimum thickness requirements of Footnote 6 when used to seal Items in Section 5.
00121	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<b>Item 5.2.1 – Foam gaskets under sill plates atop non-solid foundations</b>
				<b>Issue:</b> Partners have asked if a foam gasket is required beneath sill plates adjacent to conditioned space if they rest on a foundation that is not solid (e.g. CMU foundation walls).
				<b>Resolution:</b> Item 5.2.1 requires a foam gasket beneath sill plates resting atop concrete or masonry (e.g., CMU walls) and adjacent to conditioned space: “All sill plates adjacent to conditioned space sealed to foundation or sub-floor with caulk. Foam gasket also placed beneath sill plate if resting atop concrete or masonry and adjacent to conditioned space.”
00122	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<b>Item 5.2.1 – Foam gaskets and sill plate caulking</b>
				<b>Issue:</b> Partners have asked why sill plates adjacent to conditioned spaces must be sealed to the foundation or sub-floor with caulk AND a foam gasket must also be placed beneath them if they rest atop concrete or masonry.
				<b>Resolution:</b> A foam gasket and caulk sealing are required where sill plates rest atop concrete or masonry to provide adequate air sealing. Homes are particularly susceptible to poor air-sealing at the interface of two dissimilar materials such as these. This occurs because inconsistencies in the shape and texture of the materials often lead to substantial gaps through which air can leak. Therefore, a foam gasket and caulk sealing are both required as a best practice to eliminate gaps and ensure a complete air seal.
00123	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<b>Item 5.2.1 – Alternatives to foam gaskets</b>
				<b>Issue:</b> Partners have asked if caulk or construction adhesive may be applied to the bottom of the sill plate in place of a foam gasket to meet the intent of Item 5.2.1.
				<b>Resolution:</b> Neither adhesive nor caulk applied by themselves to the bottom of the sill plate provide the uniform and complete sealing provided by a gasket; they are not acceptable alternatives to a foam gasket and do not meet the intent of Item 5.2.1.
00124	01/15/2012	Thermal Enclosure	Clarification	<b>Item 5.2.1 – Alternatives to sill plate caulking</b>

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		<b>System Rater Checklist (Version 3, Rev. 04)</b>		<p><b>Issue:</b> Partners have asked if foam sealants may be used in place of caulk to seal sill plates adjacent to conditioned spaces to the foundation or sub-floor per Item 5.2.1.</p> <p><b>Resolution:</b> Foam sealant is permitted to be used in place of caulk to seal the sill plate to the foundation or sub-floor. Item 5.2.1 will be revised as follows:          “All sill plates adjacent to conditioned space sealed to foundation or sub-floor with caulk, foam, or equivalent material.”          Note that when sealing the foundation to the sill plate, products should be selected in part based on the voids that they are intended to fill. Larger voids should be filled with expandable materials and smaller voids with more precise materials. Manufacturer instructions typically provide guidance on proper product selection and use.</p>
00125	01/15/2012	<b>Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)</b>	<b>Clarification</b>	<p><b>Item 5.2.3 – Air sealing at conditioned attic / wall interfaces</b></p> <p><b>Issue:</b> Partners have asked if air sealing ceiling drywall to the top plate per Item 5.2.3 is still required when the thermal and pressure boundary of the home is located at the roof deck of the attic rather than at the attic / ceiling interface.          Additionally, partners have requested that construction adhesive be permitted to be used to seal drywall to top plates at attic / wall interfaces. This adhesive is typically already stocked on construction sites when drywall is being installed, so meeting Item 5.2.3 through the use of adhesive is more achievable than through the use of caulk, foam, or gaskets.</p> <p><b>Resolution:</b> The specific intent of Item 5.2.3 is explained in Policy Record Item 00041:          “The interface between the drywall and the top plate is a common point of air leakage in the home’s pressure boundary. Furthermore, extreme temperatures are often found in unconditioned attics, exacerbating the efficiency and comfort impacts for the home’s occupants when leakage occurs.”          When the thermal and pressure boundary of the home are located at the roof deck of the attic, both of the concerns listed above are no longer applicable and Item 5.2.3 is not required. That is to say:</p> <ul style="list-style-type: none"> <li>• The pressure boundary of the home moves to the roof deck, so air leaking through the drywall / top plate interface is no longer passing through the home’s pressure boundary.</li> <li>• Installing insulation at the roof deck brings the attic within the home’s thermal boundary and therefore eliminates the extreme temperatures that can be found in unconditioned attics.</li> </ul> <p>Item 5.2.3 will be revised to not require sealing when the thermal and pressure boundary of the home is at the roof deck.</p>

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				<p>Item 5.2.3 allows “caulk, foam, or equivalent material” to be used to seal drywall to the top plate. Construction adhesive was excluded because it is not primarily intended to serve as an air sealing material and because the term encompasses many kinds of adhesives with very different properties, some of which are not conducive to this application.</p> <p>Based on feedback from partners, along with further research and consultation with DOE’s Building America Program, drywall adhesive will now be permitted to be used to meet Item 5.2.3. Drywall adhesive is designed specifically to maintain a bond with drywall and therefore is an equivalent material for Item 5.2.3. Note that this allowance applies to drywall adhesive, not to all construction adhesives.</p> <p>This item will be revised as follows:</p> <p>“Drywall sealed to top plate at all unconditioned attic / wall interfaces using caulk, foam, drywall adhesive (but not other construction adhesives), or equivalent material. Either apply sealant directly between drywall and top plate or to the seam between the two from the attic above.”</p>
00126	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<b>Rater Pre-Drywall Inspection Date field and Rater Final Inspection Date field</b>
				<b>Issue:</b> Partners have asked if the Rater Pre-Drywall Inspection Date and Rater Final Inspection Date fields are required to be completed for every home.
				<b>Resolution:</b> The Rater Pre-Drywall Inspection Date and Final Inspection Date must be provided for all homes to document who completed the Checklist and when they completed it. If the builder verifies any items on the Checklist, then the Builder Inspection Date and Builder Employee fields also must be provided.
00127	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Refinement	<b>Footnote 5 – Correction to hyperlink</b>
				<b>Issue:</b> Partners have noted that the hyperlink and text for the website that provides a list of currently exempt details for slab edge insulation needs to be corrected.
				<b>Resolution:</b> Both the hyperlink and the text for the website that provides a list of currently exempt details for slab edge insulation will be corrected to “www.energystar.gov/slabeledge.”
00128	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Comment	<b>Footnote 6 – Use of bagged batts as an air barrier</b>
				<b>Issue:</b> Partners have requested that a reminder be added to Policy Record ID 00019 to indicate that when bagged batts (fiberglass batts encapsulated in perforated plastic) are used to insulate basement and crawlspace walls, the plastic bags must be sealed at every seam if the plastic is intended to function as an air barrier.
				<b>Resolution:</b> If plastic bags that encapsulate batt insulation are used as air barriers, they must meet all requirements for an air barrier as defined by Footnote 6: “For purposes of this Checklist, an air barrier is defined as any durable solid material that blocks air flow between conditioned space and unconditioned space, including necessary sealing to block excessive air

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				<p>flow at edges and seams and adequate support to resist positive and negative pressures without displacement or damage. EPA recommends, but does not require, rigid air barriers...If flexible air barriers such as house wrap are used, they shall be fully sealed at all seams and edges and supported using fasteners with caps or heads <math>\geq 1</math> in. diameter unless otherwise indicated by the manufacturer. Flexible air barriers shall not be made of kraft paper, paper-based products, or other materials that are easily torn. If polyethylene is used, its thickness shall be <math>\geq 6</math> mil." This includes the requirement that all seams be sealed to provide a continuous air barrier.</p>
00129	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Change	<p><b>Footnote 8 – Compressed batts in floors</b></p> <p><b>Issue:</b> Footnote 8 allows floors over unconditioned spaces to be insulated with compressed batts for certain configurations, where each acceptable configuration is defined by the nominal R-value of the batt and the depth of the cavity (e.g., R-19 batts in 2x6 cavities). Partners have asked if additional combinations of insulation levels and cavity depths may be used to insulate floors.</p> <p>In addition, several conflicts between these configurations and related requirements of the Checklist have been identified.</p> <ol style="list-style-type: none"> <li>1. Compressed batts are not installed according to manufacturer installation guidelines and do not perform at their nominal R-value. Therefore, the R-value of the compressed batts must be accurately assessed in order to determine compliance with Item 2.1, which establishes minimum insulation levels.</li> <li>2. Item 2.2 requires that floor insulation achieve RESNET-defined Grade I installation or, alternatively, Grade II for surfaces with insulated sheathing. Appendix A of the RESNET Mortgage Industry National Home Energy Rating System Standards clarifies that "No more than 10% of surface area of insulation compressed or incomplete fill, by up to 30% (70% or more of intended thickness) is acceptable for 'Grade II'." While compressed batts that are otherwise properly installed do achieve full, permanent contact with the enclosure on all six sides, they are compressed over 100% of their surface area and therefore fail to meet Grade II standards.</li> <li>3. Accurately assessing the R-value of compressed batts and installing them to meet the intent of Item 2.2 requires that defects unrelated to compressing batts to maintain full contact with their enclosure not be permitted. For example, defects caused by compressing insulation around ducts or piping beyond the level of compression in the rest of the cavity should not be permitted.</li> </ol> <p><b>Resolution:</b> Most insulation manufacturers can provide their installers or customers with guidance on the R-value of their product at various rates of compression and on the levels of compression that they do not recommend exceeding. Given the many combinations of batt thicknesses and cavity depths that partners may wish to explore, relying upon this</p>

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				<p>manufacturer guidance will offer more flexibility than providing the prescriptive list of options currently in Footnote 8.</p> <p>To resolve the conflicts related to insulation installation grade, floors will be deemed to meet Item 2.2 so long as the compression caused by excess insulation is the sole defect preventing the insulation from achieving the required installation grade.</p> <p>Footnote 8 will be revised as follows:</p> <p>“Examples of supports necessary for permanent contact include staves for batt insulation or netting for blown-in insulation. Alternatively, batts that completely fill floor cavities enclosed on all six sides may be used to meet Items 2.2 and 3.2, even when compression occurs due to excess insulation, as long as the R-value of the batts has been appropriately assessed based on manufacturer guidance and the only defect preventing the insulation from achieving the required installation grade is the compression caused by the excess insulation.”</p>
00130	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Clarification	<p><b>Footnote 13 – Reduced thermal bridging for mass walls not part of passive solar designs</b></p> <p><b>Issue:</b> Partners have asked two questions regarding the reduced thermal bridging requirements for mass walls that are not part of a passive solar design.</p> <p>First, partners have asked whether the thermal resistance of each material in the mass wall assembly is permitted to contribute to the component insulation level referenced in Footnote 13 of the Checklist (“... shall provide <math>\geq 50\%</math> of the applicable component insulation requirement in the 2009 IECC...”) or if only some subset of insulating materials may be used to meet this requirement.</p> <p>Second, partners have asked if the component insulation level must be met strictly through the nominal resistance of the components or if thermal mass effects can also contribute towards meeting this requirement.</p> <p><b>Resolution:</b> The nominal thermal resistance of each material in the mass wall assembly is permitted to contribute towards meeting the intent of this requirement. Thermal mass effects are not permitted to contribute towards meeting this requirement.</p> <p>In order to clarify this intent, the second paragraph of Footnote 13 will be revised to reference the mass wall equivalent U-factors defined in Table 402.1.3 of the 2009 IECC rather than the component insulation requirements defined in Table 402.1.1 of the 2009 IECC. The revised Footnote will also refer to the ASHRAE Handbook of Fundamentals as the basis for calculating the thermal resistance of the assembly.</p> <p>The second paragraph of the Footnote will be revised to read:</p> <p>“Mass walls that are not part of a passive solar design (e.g., CMU block or log home enclosure) shall either utilize the strategies outlined in Item 4.4 or the pathway in the assembly with the least thermal resistance, as determined using a method consistent with the 2009 ASHRAE</p>

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				<p>Handbook of Fundamentals, shall provide <math>\geq 50\%</math> of the applicable assembly resistance, defined as the reciprocal of the mass wall equivalent U-factor in the 2009 IECC – Table 402.1.3. Documentation identifying the pathway with the least thermal resistance and its resistance value shall be collected by the Rater and any Builder Verified or Rater Verified box under Item 4.4 shall be checked.”</p> <p>For example, in CZ 2, the reciprocal of the mass wall equivalent U-factor in the 2009 IECC – Table 402.1.3 is <math>1 / 0.165 = 6.06</math>. As long as the path through the assembly with the least resistance provides at least 50% of this value (i.e., R-3.0), then the mass wall would meet the intent of the thermal bridging requirements in Item 4.4 of this Checklist. The resistance of the path would be determined using a method consistent with the 2009 ASHRAE Handbook of Fundamentals, such that air layers and all other assembly layers are included.</p>
00131	01/15/2012	Thermal Enclosure System Rater Checklist (Version 3, Rev. 04)	Refinement	<p><b>Footnote 15 – Corrected reference to a Checklist Item</b></p> <p><b>Issue:</b> Partners have noted that the reference in this Footnote does not align with the terminology used in the Checklist.</p> <p><b>Resolution:</b> To improve clarity, the phrase “Section 4.4.1” will be revised to read “Item 4.4.1”.</p>
00132	01/15/2012	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)	Comment	<p><b>Required credentials for HVAC contractors serving multiple markets</b></p> <p><b>Issue:</b> Partners have asked if HVAC contractors working in multiple markets must attend a training session for each market that they serve.</p> <p><b>Resolution:</b> HVAC contractors that complete the HVAC System QI Contractor Checklist must be credentialed by an EPA-recognized industry oversight organization. The credential is awarded to companies, not to individuals, and applies to all markets served by credentialed companies.</p> <p>As part of the credentialing process, contractors will typically need to attend a short training explaining the application process, but this is just one step in the larger credentialing process. For more information regarding the HVAC credentialing requirements visit <a href="http://www.energystar.gov/newhomesHVAC">www.energystar.gov/newhomesHVAC</a>.</p>
00133	01/15/2012	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)	Change	<p><b>Required credentials for HVAC designers and Raters and applicability of Checklist to whole-house mechanical ventilation system design and installation</b></p> <p><b>Issue:</b> Partners have asked several questions related to HVAC credentialing:</p> <ol style="list-style-type: none"> <li>1. For some homes, the HVAC design and HVAC installation are completed by two independent companies. Partners have asked if both entities must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). This question is of particular relevance to heating, cooling, and ventilation designers that do not install equipment because many elements of the currently</li> </ol>

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				<p>available credential (e.g., fleet management, hazardous materials regulations, safety programs) are not relevant to such companies.</p> <ol style="list-style-type: none"> <li>2. Footnote 1 allows Raters to verify items on the Checklist. Partners have asked if there are any restrictions on the number of items that Raters are permitted to verify and if there are any items that Raters are not permitted to verify because they require specialized training and knowledge (e.g., refrigerant testing).</li> <li>3. Some homes are built with hydronic heating systems and no air conditioning, so that the only forced-air system other than local mechanical exhaust is whole-house mechanical ventilation. Partners have asked which parts of the HVAC System Quality Installation Contractor Checklist must be completed in this case and, for the parts that must be completed, which must be completed by a credentialed HVAC contractor.</li> </ol> <p><b>Resolution:</b> The intent of the HVAC credentialing requirement is to ensure that firms have adequate standards and processes in place to properly perform their work, to provide oversight through quality assurance activities, to provide a complaint resolution process, and to recognize firms that voluntarily hold themselves to these standards. The intent was not to prescribe a particular business model (i.e., a contractor who both designs and installs heating, cooling, and ventilation systems).</p> <p>Therefore, until credentials are available specifically for heating, cooling, and ventilation system designers, either the builder (or a firm or HERS Rater hired by the builder) or the credentialed HVAC contractor (or a firm or HERS Rater hired by the credentialed contractor) shall be permitted to design such systems and to complete Sections 1 through 5 of the HVAC System Quality Installation Contractor Checklist. As always, the designer must comply with applicable codes and laws that regulate HVAC designers and HVAC designs.</p> <p>When a credentialed contractor retains an uncredentialed company or HERS Rater to design systems and complete any items in Section 1 through 5, the credentialed contractor shall be responsible for ensuring that the work complies with the Checklist and that the Checklist has been completed, including preparing the documentation required by Items 1.3, 2.18, and 3.15. In essence, the responsibilities of the contractor have not changed. Rather, this resolution clarifies that credentialed contractors are permitted to retain a design company, even if that company is not itself credentialed.</p> <p>When a builder retains an uncredentialed company or utilizes in-house staff or a HERS Rater, the builder shall be responsible for ensuring that the work complies with the Checklist and that the Checklist has been completed, including preparing the documentation required by Items 1.3, 2.18, and 3.15.</p> <p>In both cases, Sections 6 through 12 of the Checklist may only be completed by a credentialed HVAC contractor.</p> <p>If there are no forced-air heating or cooling systems in the home, then Section 1 is the only</p>
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			<p>section of the Checklist that must be completed. This is true even in such homes that use a forced-air ventilation system, because ASHRAE 62.2-2010 does not prescribe room-level duct design requirements for the ventilation system.</p> <p>The second through fourth paragraphs of Footnote 1 will be combined and revised to add the guidance on ventilation systems and to remove the guidance related to Raters (which will be relocated to Footnotes 5 and 6):</p> <p>“This Checklist applies to ventilation systems, split air conditioners, unitary air conditioners, air-source / water-source (i.e., geothermal) heat pumps up to 65,000 Btu / h and furnaces up to 225,000 Btu / h. All other equipment, including boilers, is exempt. If the ventilation system is the only applicable system installed in the home, then only Section 1 shall be completed.”</p> <p>“One Checklist shall be completed for each system and provided to the Rater. This Checklist with supporting documents may also be used to demonstrate compliance with Indoor airPLUS specifications 4.1, 4.2, 4.5, 4.6, and 7.1.”</p> <p>Footnote 4 will be revised to align with this policy change allowing builders, credentialed contractors, and firms that they hire to perform HVAC design:</p> <p>“The person responsible for the heating, cooling, and ventilation design shall be responsible for completing Sections 1 and 2 of this Checklist.”</p> <p>Footnote 6 will be revised to clarify the credentialed HVAC contractor’s responsibility:</p> <p>“The ‘Cont. Verified’ column shall be used to indicate items verified by the credentialed HVAC contractor (or a firm or HERS Rater hired by the contractor). The credentialed contractor is responsible for these Items and shall sign the bottom of this Checklist.”</p> <p>The second verification column on the Checklist will be revised from “Rater Verified” to “Builder Verified” so that the “Builder Verified” and “Cont. Verified” columns reflect the parties responsible for the completion of the Checklist. A new footnote will be added to the “Builder Verified” column to clarify the builder’s responsibility:</p> <p>“The ‘Builder Verified’ column shall be used to indicate items verified by the builder (or a firm or HERS Rater hired by the builder). The builder is responsible for these Items and must sign the bottom of this Checklist if any items in Sections 1 through 5 on this Checklist have been marked ‘Builder Verified’. Only credentialed contractors may complete Items in Sections 6-10.”</p> <p>The signatures at the bottom of the Checklist will be revised to collect the name, signature, and date of signature of representatives of the credentialed HVAC contractor and the builder.</p> <p>Footnote 25 will be applied to the builder name, signature, and date of signature, and will explain that the builder’s signature is only required if items on the Checklist have been marked “Builder Verified.”:</p> <p>“Builder name, signature, and signature date are required if any items in Sections 1 through 5 have been marked ‘Builder Verified’.”</p>
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00134	01/15/2012	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)	Comment	<b>Section 1 – ASHRAE 62.2-2010</b>
				<b>Issue:</b> Partners have asked where they can obtain a copy of ASHRAE 62.2.-2010: Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.
				<b>Resolution:</b> ASHRAE 62.2-2010 can be previewed and purchased at <a href="http://openpub.realread.com/rserver/browser?title=/ASHRAE_1/ashrae_62_2_2010_1024">http://openpub.realread.com/rserver/browser?title=/ASHRAE_1/ashrae_62_2_2010_1024</a> .
00135	01/15/2012	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)	Comment	<b>Item 1.1 – Whole house mechanical ventilation</b>
				<b>Issue:</b> Partners have asked if a whole-house mechanical ventilation system must be installed in a home, even if the home can provide the ventilation rate required by ASHRAE 62.2-2010 through infiltration alone without any mechanical systems.
				<b>Resolution:</b> The ventilation rate defined in ASHRAE 62.2-2010 was derived assuming a default level of infiltration. The committee recently clarified that, per Section 4.1.2 of that standard, Licensed Design Professionals may certify homes as ASHRAE 62.2 compliant when the sum of the designed/measured natural (i.e. infiltration) and mechanical ventilation of the home meets or exceeds the sum of the Infiltration Credit (Section 4.1.3) and Ventilation Rate (Section 4.1) of the same home; excess infiltration over and above the default rate being an acceptable method for meeting the required whole-house ventilation rates.  With that said, homes with high infiltration rates may have difficulty meeting other program requirements, such as meeting the mandatory air sealing requirements in Section 5 of the Thermal Enclosure System Rater Checklist and the ENERGY STAR HERS index target. Therefore, it is unlikely that qualified homes will be able to be built without a whole-house mechanical ventilation system and EPA does not recommend this practice.
00136	01/15/2012	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)	Comment	<b>Item 2.2 – Ductilators</b>
				<b>Issue:</b> Partners have asked whether a ductilator and hand calculations are permitted to be used to design duct systems according to ACCA Manual D or if software must be used.
				<b>Resolution:</b> Ductilators and hand calculations are permitted to be used to comply with ACCA Manual D. Duct design software tools are also permitted to be used, but are not required.
00137	01/15/2012	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)	Refinement	<b>Item 9.2 – Typographical error</b>
				<b>Issue:</b> EPA has identified a minor typographical error in Item 9.2.
				<b>Resolution:</b> The word “Cooing” in Item 9.2 will be revised to “Cooling”.
00138	01/15/2012	HVAC System Quality Installation	Comment	<b>Footnote 7 – Worst-case configurations in HVAC design</b>
				<b>Issue:</b> Partners have asked whether they can calculate loads and select equipment for a set of

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		<p><b>Contractor Checklist (Version 3, Rev. 04)</b></p>	<p>home plan configurations based on the worst-case configuration or if they must calculate loads and select equipment for each individual configuration instead. For example, if a plan can be built with either an unconditioned porch or an optional conditioned sun room, can loads be calculated and equipment be selected using the worst-case configuration, which will likely include the sunroom, even if the plan will sometimes be built without the sunroom?</p> <p><b>Resolution:</b> Footnote 7 defines how loads are to be calculated for home plans built in different configurations based on the date of final inspection for the home:</p> <p><u>“For homes with a date of final inspection through 12/31/2012:</u></p> <p>“For each house plan with multiple configurations (e.g., orientations, elevations, options), the loads shall be permitted to be calculated for the configuration that will result in the largest load. The largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S.</p> <p>“For each house plan with multiple configurations, the room-level design airflows shall be permitted to be calculated using the configuration that resulted in the largest load.</p> <p><u>“For homes with a date of final inspection on or after 01/01/2013:</u></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> <p>For homes that will have final inspection dates on or prior to 12/31/2012, loads can be calculated and equipment can be selected based on the worst-case configuration, subject to the oversizing limits of ACCA Manual S. In this case, the heating and cooling loads do not need to be calculated for every configuration; only the loads for the worst-case configuration may be calculated. In the case of a home plan with an optional sunroom, the sunroom will typically be part of the worst-case configuration.</p> <p>For homes with final inspection dates on or after 1/1/2013, however, the loads for each configuration must be calculated. The largest load is then permitted to be used to select</p>
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				equipment (subject to the oversizing limits of ACCA Manual S) only if the loads across all configurations vary by no more than 25%.
00139	01/15/2012	HVAC System Quality Installation Contractor Checklist (Version 3, Rev. 04)	Comment	<b>Footnote 22 – Inaccessible balancing dampers</b>
				<b>Issue:</b> Partners have asked how balancing dampers should be installed in ducts in flat attics where there is usually no access to balance the ducts once they are installed.
				<b>Resolution:</b> Footnote 22 clarifies where balancing dampers are permitted to be installed: “When balancing dampers are used, they shall be located at the trunk to limit noise unless the trunk will not be accessible when the balancing process is conducted. In such cases, Opposable Blade Dampers (OBD) or dampers located in the duct boot are permitted.” Alternatively, electronic dampers can be installed so that the system can be balanced without direct access to the ductwork.
00054	07/25/2011	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Comment	<b>Item 1.2.9 – Sizing heat pumps in cold climates</b>
				<b>Issue:</b> Partners have asked whether the listed total cooling capacity limits noted in Item 1.2.9 contain exemptions for heat pump systems in cold climates, as these systems are typically sized to the heating load, which can be significantly higher than the cooling load.
				<p><b>Resolution:</b> ACCA Manual S provides less stringent oversizing limits when the cooling load is substantially smaller than the heating load and adjustable-speed equipment is used. According to Manual S:</p> <p>“The allowable margin of excess capacity will depend on the relative size of the design cooling load and design heating load:</p> <ul style="list-style-type: none"> <li>• “If the cooling load is substantially larger than the heating load, the limit on excess cooling capacity is identical to the limit that applies to single speed equipment.</li> <li>• “If the cooling load is substantially smaller than the heating load, an absolute limit on the amount of excess cooling capacity is not required because the equipment can be operated at a reduced capacity during the cooling season. However, this does not mean that the amount of excess cooling capacity is irrelevant. In this regard, the designer must make sure the system will provide adequate humidity control during any possible operating condition.”</li> </ul> <p>Therefore, partners may use variable or dual-speed cooling equipment that does not meet the strict oversizing limits of Item 1.2.9 if the cooling load is substantially smaller than the heating load.</p> <p>In contrast, if the cooling load is substantially larger than the heating load, the same strict oversizing limits apply. In that case, Footnote 7 provides some flexibility to select equipment based on available equipment size increments, particularly for multi-speed equipment. Footnote 7 reads: “For cooling systems, the next largest nominal piece of equipment may be</p>

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				used that is available to satisfy the latent and sensible requirements. Single-speed systems generally have OEM nominal size increments of ½ ton. Multi-speed or multi-stage equipment may have OEM nominal size increments of one ton. Therefore, the use of these advanced system types can provide extra flexibility to meet the equipment sizing requirements.”
00140	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Clarification	<b>Section 2 – Whole-house mechanical ventilation system installation</b>
				<p><b>Issue:</b> Partners have noted that the heading in Section 2, Duct Quality Installation, indicates that the requirements of this Section apply to ventilation ducts. However, some of the Items in this Section do not seem generally applicable to homes in which the only forced-air system is a ventilation system (e.g., homes with hydronic heating systems and no air conditioning). Specifically, Partners have asked the following:</p> <ol style="list-style-type: none"> <li>1. Item 2.7 requires the Rater to verify the quantity and location of supply and return duct terminals based on a balancing report from the contractor. However, the Contractor Checklist does not indicate that Section 10 of that Checklist, Air Balancing, applies to ventilation ducts. Therefore, does Item 2.7 apply to such homes?</li> <li>2. Item 2.8 requires that bedrooms be pressure-balanced. Partners have asked if it is truly EPA’s intent to ensure that bedrooms are pressure-balanced in such homes.</li> </ol>
				<p><b>Resolution:</b> The intent of requiring quality duct installation practices for ventilation ducts is to help ensure that ventilation system performance is not compromised by improper installation practices such as kinked, excessive, coiled, compressed, or inadequately supported ductwork. This intent is captured in Items 2.1 through 2.4, which apply to ventilation ducts. Items 2.5 and 2.6 help prevent excessive leakage and mitigate the risk of moisture problems caused by poor duct location and installation and also apply to ventilation ducts. ASHRAE 62.2-2010 does not prescribe room-level duct design requirements for the ventilation system. Therefore, Items 2.7 and 2.8 are not applicable to ventilation ducts and a new footnote will be added to the heading of Section 2 and to these two Items. The new footnote will read as follows: “Items 2.7 and 2.8 do not apply to ventilation ducts.”</p>
00056	07/25/2011	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Clarification	<b>Item 2.8 – Bedroom door configuration for room pressure-balancing</b>
				<p><b>Issue:</b> Item 2.8 requires Raters to verify that bedrooms are pressure-balanced by either calculating the free area of vents and openings to the main body of the home or by testing the pressure differential between the bedroom and the home. Partners have asked whether, when testing the pressure differential, all bedroom doors should be closed or if only the door to the bedroom being tested should be closed. Partners have also asked if, when multiple air handlers are present in the home, all air handlers must be operating during the test or if only the air handler that serves the room being tested should be operating.</p>
				<p><b>Resolution:</b> When testing room pressure balancing, all bedroom doors shall be closed and all</p>

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				<p>air handlers shall be operating. Requiring that Raters close all bedroom doors and operate all air handlers during testing will improve the consistency of the test and is presumed to create a worst-case condition, which may occur during nighttime hours. Item 2.8 will be revised as follows:</p> <p>“Bedrooms pressure-balanced using any combination of transfer grills, jump ducts, dedicated return ducts, and / or undercut doors to either: a) provide 1 sq. in. of free area opening per 1 CFM of supply air, as reported on the contractor-provided balancing report; or b) achieve a Rater-measured pressure differential <math>\leq 3</math> Pa (0.012 in. w.c.) with respect to the main body of the house when all bedroom doors are closed and all air handlers are operating.”</p>
00141	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Change	<b>Item 4.1 – Total duct leakage limits</b>
				<p><b>Issue:</b> Partners have expressed difficulty meeting the total duct leakage limit in Item 4.1 for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.</p>
				<p><b>Resolution:</b> Reducing total duct leakage can improve system efficiency, enhance occupant comfort, and minimize comfort and durability problems associated with pressurizing or depressurizing interstitial cavities in homes.</p> <p>Because of the high total duct leakage typically caused by panning, Item 4.2 prohibits using building cavities as supply or return ducts unless they meet the insulation and leakage requirements of Item 3.2, 3.3, 4.1, and 4.2. In cases where partners cannot meet these items, they must use other duct designs that do meet the minimum insulation levels and maximum leakage thresholds.</p> <p>However, to ease implementation for partners while retaining the value of a duct system with low total leakage compared to standard practice, Item 4.1 will be revised as follows: “Total Rater-measured duct leakage <math>\leq 8</math> CFM25 per 100 sq. ft. of conditioned area.”</p> <p>Partner feedback indicated that 8 CFM25 of total leakage per 100 sq. ft. of conditioned area is achievable in both large and small homes. Because the total duct leakage threshold will now be the same for all homes, Footnote 16, which addresses duct leakage thresholds for small homes (&lt; 1,200 sq. ft.), will remove the reference to total duct leakage and will only apply to Item 4.1 and not to Item 4.2. In addition, to improve clarity, all exemptions related to duct testing will be merged into this Footnote. Footnote 16 will be revised as follows: “For homes that have &lt; 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be <math>\leq 5</math> CFM25 per 100 sq. ft. of conditioned floor area. Testing of duct leakage to the outside can</p>

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				be waived if all ducts & air handling equipment are located within the home's air and thermal barriers AND envelope leakage has been tested to be less than or equal to half of the Prescriptive Path infiltration limit for the Climate Zone where the home is to be built. Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is $\leq 4$ CFM25 per 100 sq. ft. of conditioned floor area, or $\leq 5$ CFM25 per 100 sq. ft. of conditioned floor area for homes that have less than 1,200 sq. ft. of conditioned floor area."
00142	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Comment	<b>Item 4.1 &amp; Item 4.2 - Duct Leakage test procedures</b>
				<b>Issue:</b> Partners have asked whether, when sealing a register grille to conduct duct leakage tests, only the face of the grille should be sealed or if the perimeter of the grille should also be sealed to the surface beneath (e.g., drywall, carpet, flooring).
				<p><b>Resolution:</b> Duct leakage test procedures are defined by the RESNET Mortgage Industry National Home Energy Rating System Standards. Appendix A prescribes ASHRAE Standard 152 with several additions and exceptions that are unrelated to how register grilles are to be sealed. ASHRAE 152 contains the following guidance:</p> <ul style="list-style-type: none"> <li>• When testing supply-side leakage to the outside: "Seal all the registers except those selected in this step."</li> <li>• When testing return-side leakage to the outside: "Ensure that all other registers are sealed..."</li> <li>• When testing total leakage: "Seal all the register grilles or boots."</li> </ul> <p>Partners are variously interpreting this language to prohibit sealing the perimeter of register grilles, to require sealing the perimeter of register grilles, or to leave the issue up to Providers' discretion.</p> <p>Until RESNET and / or ASHRAE clarifies the duct leakage testing procedure that Raters are to follow, EPA will consider leakage results from either method (i.e., from sealing only the register face, or from sealing both the register face and perimeter) to be acceptable for the purpose of verifying Items 4.1 and 4.2.</p>
00143	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Change	<b>Item 4.3 – Duct boot sealing</b>
				<b>Issue:</b> Partners have asked if duct boots must be sealed to the ceiling per Item 4.3 when the space above the ceiling is within the thermal and pressure boundary of the home. For example, must duct boots be sealed to the ceiling of the first floor if a conditioned second story is above, or if a cathedralized attic is above?
				<b>Resolution:</b> Because Item 4.1 already limits total duct leakage throughout the duct system, Item 4.3 will be removed so that partners can use their judgment to determine when to seal and inspect duct boots.

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				Note that duct boots will often need to be sealed to floors, walls, and ceilings to meet the total duct leakage limit. This change simply removes duct boot sealing as a mandatory requirement for qualification.
00144	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Comment	<b>Item 5.1 – Whole-house ventilation rate</b>
				<b>Issue:</b> Item 5.1 requires that the Rater-measured ventilation rate be within 100-120% of the HVAC contractor design value. Partners have asked if this requirement can be met by installing a bath fan with a controller that is marketed to meet ASHRAE 62.2-2010 (e.g., with a setting based on the number of bedrooms in the home and the conditioned floor area of the home).
				<b>Resolution:</b> A bath fan combined with a controller that is set to operate the fan according to the run-time requirements of ASHRAE 62.2-2010 can be used to meet the intent of this Item, as long as the system's ventilation rate is measured by the Rater and verified to be 100-120% of the HVAC contractor design value.
00145	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Comment	<b>Section 8 – Whole-house ventilation system location</b>
				<b>Issue:</b> Partners have asked if a fan in a kitchen or bathroom can be used to meet both the requirement for local mechanical exhaust in Section 8 and the requirement for whole-house ventilation in Section 1 of the HVAC System Quality Installation Contractor Checklist.
				<b>Resolution:</b> Section 1 of the HVAC System Quality Installation Contractor Checklist requires that a whole-house ventilation system that meets ASHRAE 62.2-2010 requirements be installed but does not prescribe a specific system type or location. Therefore, a fan located in a kitchen or bathroom is permitted to provide both local mechanical exhaust and whole-house ventilation if it meets all the requirements of Section 1 of the HVAC System Quality Installation Contractor Checklist and Section 8 of the HVAC System Quality Installation Rater Checklist.
00146	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Comment	<b>Item 8.1 – Local mechanical exhaust rates</b>
				<b>Issue:</b> Item 8.1 requires that a local mechanical exhaust system be installed in each kitchen that provides either $\geq 5$ air changes per hour (ACH) based on kitchen volume, if operating continuously, or $\geq 100$ CFM, if operating intermittently. Footnote 28 further clarifies that if the flow rate of an intermittent exhaust fan is less than 5 ACH, based on kitchen volume, then a vented range hood or appliance-range hood combination is required rather than a remote fan that is not integral to the range. Partners have asked how to assess whether an intermittent fan meets the 5 ACH requirement.
				<b>Resolution:</b> The ability of an intermittent fan to meet the 5 ACH requirement is permitted to be assessed using the flow rate that would be produced if the fan was operating continuously for an hour, even if the fan may actually be operated intermittently in the home.

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00147	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Clarification	<b>Item 9.1 &amp; 9.2 – Sound limits for multispeed local mechanical exhaust fans</b>
				<p><b>Issue:</b> Partners have asked at which speed fans must meet the sone limits in Items 9.1 and 9.2. Partners have also expressed difficulty finding multispeed ventilation and exhaust fans that meet those limits.</p> <p><b>Resolution:</b> Multispeed fans must meet the sone limits of Items 9.1 or 9.2 when producing no less than the minimum airflow rate required by Section 8. In order to clarify this requirement, Item 9.1 will be revised as follows: “Intermittent supply and exhaust fans rated at ≤ 3 sones by mfr. when producing no less than the minimum airflow rate required by Section 8 of this Checklist, unless rated flow ≥ 400 CFM.” Additionally, Item 9.2 will be revised as follows: “Continuous supply &amp; exhaust fans rated at ≤ 1 sone by mfr. when producing no less than the minimum airflow required by Section 8 of this Checklist.”</p> <p>All ENERGY STAR qualified bathroom fans (and range hoods) have sound ratings of 3 sones or less and, therefore, may be good candidates to meet Item 9.1. A list of qualified ventilation fans and retail locations has been posted in the “Fans, Ventilating Resources” column at the right of the page at <a href="http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&amp;pgw_code=VE">http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&amp;pgw_code=VE</a>, which is also accessible by visiting <a href="http://www.energystar.gov">www.energystar.gov</a>, clicking on “Find ENERGY STAR Products” in the “Products” box, and then clicking on “Fans, Ventilating” under the “Heating &amp; Cooling” heading.</p>
00148	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Comment	<b>Item 10.2 – Direct-vented appliances</b>
				<p><b>Issue:</b> Partners have asked what the definition of a direct-vented appliance is and how to determine if a fireplace is directly vented to the outdoors.</p> <p><b>Resolution:</b> Per the 2009 International Mechanical Code, a direct-vent appliance is one that is constructed and installed so that all air for combustion is derived from the outdoor atmosphere and all flue gases are discharged to the outside atmosphere. A direct-vent fireplace has a fresh air inlet to supply air for combustion and also has a flue that vents combustion gases directly to the outdoors.</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>
				<p><b>Issue:</b> Partners have asked if Section 11, related to filtration, applies to mechanical ventilation systems.</p> <p><b>Resolution:</b> [Issue under review.]</p>
00150	01/15/2012	HVAC System Quality Installation	Comment	<b>Rater Company Name field and Date Checklist Inspected field</b>
				<b>Issue:</b> Partners have asked if the Rater Company Name and the Date Checklist Inspected

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		Rater Checklist (Version 3, Rev. 04)		fields are required to be completed for every home.
				<b>Resolution:</b> The Rater company name and date that the Checklist was inspected must be documented each time the Checklist is filled out.
00151	01/15/2012	HVAC System Quality Installation Rater Checklist (Version 3, Rev. 04)	Refinement	<b>Footnote 2 - Rater responsibility</b>
				<b>Issue:</b> A grammatical error was identified in the text of Footnote 2.
				<b>Resolution:</b> To correct this error and to align with the language used in Footnote 1 of the Contractor Checklist, Footnote 2 will be revised to read: “The Rater is only responsible for ensuring that the Contractor has completed the Contractor Checklist in its entirety and verifying the discrete objective parameters referenced in Section 1 of this Checklist, not for assessing the accuracy of the load calculations or field verifications included or for verifying the accuracy of every input on the Contractor Checklist.”
00152	01/15/2012	Water Management System Builder Checklist (Version 3, Rev. 04)	Comment	<b>Use of “Must Correct” column</b>
				<b>Issue:</b> Partners have asked when an item should be designated as “Must Correct”.
				<b>Resolution:</b> An item must be marked as “Must Correct” when it has been inspected and does not meet the intent of that item.
00153	01/15/2012	Water Management System Builder Checklist (Version 3, Rev. 04)	Comment	<b>Item 1.3 – Capillary break beneath slabs for gut rehabs</b>
				<b>Issue:</b> Partners have asked if gut rehab projects can meet the intent of Item 1.3, which requires a capillary break beneath all slabs except for crawlspace slabs, by installing a vapor barrier on top of a slab.
				<b>Resolution:</b> Historically, EPA has allowed existing homes to earn the ENERGY STAR if all requirements of the guidelines have been met. This policy has not changed, though EPA does recognize that it will be more challenging for existing homes to meet all requirements of the guidelines under Version 3 of the program. In the future, EPA may identify the most challenging items and develop alternate details that meet the same intent, thereby allowing existing homes to more easily qualify.  With regards to Item 1.3, one alternate that may be used to meet the intent of this item is to construct a rat slab. This building technique calls for the builder to install a layer of polyethylene sheeting on top of an existing slab and then to pour a thin slab that is approximately 2 inches thick over the polyethylene sheeting. This secondary rat slab improves foundation assembly durability by providing a capillary break and protecting the polyethylene sheeting from tearing. For more information about rat slabs, please refer to guidance provided on EPA’s Indoor airPLUS website at the following link: <a href="http://www.epa.gov/indoorairplus/technical/moisture/1_2.html">http://www.epa.gov/indoorairplus/technical/moisture/1_2.html</a> .

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00078	07/25/2011	Water Management System Builder Checklist (Version 3, Rev. 04)	Issue Under Review	<b>Item 3.2 – Gutters and downspouts</b>
				<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.
				<b>Resolution:</b> [Issue under review]
00154	01/15/2012	Water Management System Builder Checklist (Version 3, Rev. 04)	Clarification	<b>Item 4.2 – Alternatives to cement board</b>
				<b>Issue:</b> Partners have asked if the Schluter-KERDI shower system, a waterproof membrane designed to be installed over drywall behind ceramic and stone tile coverings, can be used to meet the intent of Item 4.2, which requires “cement board or equivalent moisture-resistant backing material” behind tub and shower enclosures composed of tile or panel assemblies with caulked joints. Partners have noted that this product has been evaluated by the ICC Evaluation Service according to AC 115 – Acceptance Criteria for Waterproof Membranes for Flooring and Shower Lining.
				<b>Resolution:</b> The Schluter-KERDI shower system meets the intent of Item 4.2. AC 115 establishes standards regarding physical performance (ANSI A118.10-1999 Load Bearing, Bonded, Waterproof Membranes For Thin-set Ceramic Tile and Dimension Stone Installations), durability, and installation instructions. Materials that have passed such evaluations are “equivalent moisture-resistant backing materials” and meet the intent of Item 4.2 by helping to ensure that drywall behind them will not be exposed to water, thereby minimizing problems with mold, mildew, and water damage. To minimize the potential for mold growth, paper-faced backerboard must meet mold-resistant standards ASTM D3273 or ASTM D6329 when installed behind waterproof membranes evaluated according to AC 115.  Footnote 13 will be revised as follows:  “In addition to cement board, materials that have been evaluated by ICC-ES according to AC 115, Acceptance Criteria for Waterproof Membranes for Flooring and Shower Lining, may also be used to meet this requirement. Monolithic tub and shower enclosures (e.g., fiberglass with no seams) are exempt from this backing material requirement unless required by the manufacturer. Paper-faced backerboard may only be used behind monolithic enclosures or waterproof membranes that have been evaluated by ICC-ES according to AC 115, and then only if it meets ASTM mold-resistant standards ASTM D3273 or ASTM D6329.”
00155	01/15/2012	Water Management System Builder Checklist (Version 3, Rev. 04)	Comment	<b>Item 4.2 – Use of Thermoply</b>
				<b>Issue:</b> Partners have asked if Thermoply is a paper-faced product and if it can be used to meet the intent of Item 4.2, which prohibits paper-faced backerboard from being used on walls behind tub and shower enclosures composed of tile or panel assemblies with caulked joints.

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				<p><b>Resolution:</b> Thermoply is a paper-faced product and does not comply with Item 4.2 except when coupled with a moisture-resistant backing material. The intent of Item 4.2 is to ensure that backing material installed behind tile and panel assemblies is not susceptible to mold, mildew, or other water damage.</p>
00156	01/15/2012	Water Management System Builder Checklist (Version 3, Rev. 04)	Comment	<p><b>Builder Employee field</b></p>
				<p><b>Issue:</b> Partners have asked if the Builder Employee field is required to be completed for every home.</p>
				<p><b>Resolution:</b> The builder employee name must be documented if any items on the Checklist are marked “Builder Verified”.</p>
00157	01/15/2012	Water Management System Builder Checklist (Version 3, Rev. 04)	Refinement	<p><b>Footnote 2 - Rater verification of Checklist</b></p>
				<p><b>Issue:</b> Partners have asked EPA to clarify language related to Raters’ responsibilities when verifying the Water Management System Builder Checklist.</p>
				<p><b>Resolution:</b> To better convey the policy intent and align with the language used elsewhere related to Raters’ responsibilities, Footnote 2 will be revised to read: “Upon completion, the builder shall return the Checklist to the Rater for review. Alternatively, at the discretion of the builder and Rater, the Rater may verify any item on this Checklist. When this occurs, the Rater shall check the box of the verified items in the Rater Verified column. The Rater is only responsible for ensuring that the builder has completed the Builder Checklist in its entirety and for verifying the items that are checked in the Rater Verified column (if any). The Rater is not responsible for assessing the accuracy of the field verifications for items in this Checklist that are not checked in the Rater Verified column. Instead, it is the builder’s exclusive responsibility to ensure the design and installation comply with the Builder Checklist.”</p>
00158	01/15/2012	HERS Index Target Procedure for National Program Requirements (Version 3, Rev. 04)	Comment	<p><b>Glazing area</b></p>
				<p><b>Issue:</b> Partners have asked if windows located in the basement of the Rated Home should be included when calculating the glazing area of the ENERGY STAR Reference Design Home.</p>
				<p><b>Resolution:</b> If the basement of the Rated Home is conditioned, then the glazing area in the basement should be included when configuring the ENERGY STAR Reference Design Home. Note that the glazing area of the ENERGY STAR Reference Design Home is capped at 15% of the conditioned floor area of the Rated Home. If the basement of the Rated Home is not conditioned, then the glazing area in the basement should be excluded.</p>
00159	01/15/2012	County-Level Reference Design Climate Zones 1-8	Clarification	<p><b>Partnership, Training, and Credentialing Requirements</b></p>
				<p><b>Issue:</b> Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified</p>

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		(Version 3, Rev. 04)		<p>homes.</p> <p><b>Resolution:</b> A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the “ENERGY STAR Performance Path” section and read as follows:  “Partnership, Training, and Credentialing Requirements  Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying homes under these guidelines:</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.resnet.us/energystar">www.resnet.us/energystar</a>.”</li> </ul>
00160	01/15/2012	County-Level Reference Design Climate Zones 1-8 (Version 3, Rev. 04)	Change	<p><b>Total duct leakage limits</b></p> <p><b>Issue:</b> Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.</p> <p><b>Resolution:</b> To address partners’ difficulties meeting the total duct leakage limit, the total duct leakage limit will be revised as follows: “Total duct leakage ≤ 8 CFM25 per 100 sq. ft. of conditioned area.” Because the total duct leakage threshold is not being changed for homes with less than 1,200 sq. ft. of conditioned floor area, there is no different threshold for those homes.</p> <p>Footnote 22 will be shortened to only include guidance related to duct leakage testing protocols: “Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol only after all components of the system have been installed (e.g., air handler and register grilles). Leakage limits shall be assessed on a per-system, rather than per-home, basis.”</p>

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				<p>Remaining guidance related to testing duct leakage to the outside will be consolidated in Footnote 23, which will read as follows:</p> <p>“For homes that have <math>\leq 1,200</math> sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be <math>\leq 5</math> CFM25 per 100 sq. ft. of conditioned floor area. 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. Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is <math>\leq 4</math> CFM25 per 100 sq. ft. of conditioned floor area, or <math>\leq 5</math> CFM25 per 100 sq. ft. of conditioned floor area for homes that have less than 1,200 sq. ft. of conditioned floor area.”</p>
00161	01/15/2012	County-Level Reference Design, Climate Zone 1-8 (Version 3, Rev. 04)	Refinement	<p><b>Prescriptive Path - ENERGY STAR qualified lighting</b></p>
				<p><b>Issue:</b> The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.</p>
				<p><b>Resolution:</b> To align terminology across programs, and to encourage partners to use ENERGY STAR qualified light fixtures in addition to qualified light bulbs, the Lighting &amp; Appliances section will be revised to read in part:</p> <p>“ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations.”</p>
00162	01/15/2012	County-Level Reference Design, Climate Zone 1-8 (Version 3, Rev. 04)	Clarification	<p><b>Conflicts with code or other external guidelines</b></p>
				<p><b>Issue:</b> Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home’s HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?</p>
				<p><b>Resolution:</b> If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows:</p> <ol style="list-style-type: none"> <li>a. “In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;</li> <li>b. “In cases where overlapping requirements conflict with a requirement of these</li> </ol>

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				ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement.”
00163	01/15/2012	County-Level Reference Design, Climate Zone 1-3 (Version 3, Rev. 04)	Clarification	<b>Footnote 17d - Minimum insulation requirements when using a total UA calculation</b>
				<b>Issue:</b> Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that “while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated.”
				<b>Resolution:</b> To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 17d will be revised as follows: “...Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated...”
00164	01/15/2012	County-Level Reference Design, Climate Zone 4-8 (Version 3, Rev. 04)	Clarification	<b>Prescriptive Path – Heating equipment efficiencies</b>
				<b>Issue:</b> The minimum efficiency requirements for ENERGY STAR qualified gas furnaces manufactured after 02/01/2012 will increase from 90 AFUE to 95 AFUE for the U.S. North region, defined as states with population-weighted Heating Degree Days $\geq$ 5000. The <a href="#">ENERGY STAR Product Specification for Furnaces</a> , Version 3.0 specifies which states are included in the U.S. North region.  The ENERGY STAR Reference Design defined in Exhibit 1 currently requires an ENERGY STAR qualified 90 AFUE furnace in Climate Zones 4 through 8. Partners have asked how this will be modified to account for the new ENERGY STAR product specification for furnaces.
				<b>Resolution:</b> The ENERGY STAR for Homes guidelines will not be modified at this time to align with the more stringent efficiency level required in the new ENERGY STAR product specification for furnaces. The minimum efficiency level specified for gas furnaces in Climate Zones 4 through 8 under the Prescriptive Path and Exhibit 2 of the ENERGY STAR HERS Index Target Procedure will remain at 90 AFUE. The minimum requirement for gas furnaces in Climate Zones 4 through 8 in Exhibit 1 of the National Program Requirements will be revised by removing the phrase “ENERGY STAR qualified”.

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00165	01/15/2012	County-Level Reference Design, Climate Zone 4-8 (Version 3, Rev. 04)	Clarification	<p><b>Footnote 16d - Minimum insulation requirements when using a total UA calculation</b></p> <p><b>Issue:</b> Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that “while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated.”</p> <p><b>Resolution:</b> To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 16d will be revised as follows: “...Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated...”</p>
00166	01/15/2012	California Program Requirements (Version 2.5, Rev. 01)	Clarification	<p><b>Conflicts with code or other external guidelines</b></p> <p><b>Issue:</b> Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home’s performance meets or exceeds the California 2008 Building Energy Efficiency Standards requirements by 15%. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?</p> <p><b>Resolution:</b> If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows:</p> <ol style="list-style-type: none"> <li>a. “In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;</li> <li>b. “In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. Therefore, other efficiency measures may be needed to compensate for the omission</li> </ol>

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				of the conflicting requirement.”
00167	01/15/2012	California Program Requirements (Version 3, Rev. 01)	Clarification	<b>Conflicts with code or other external guidelines</b>
				<p><b>Issue:</b> Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home’s performance meets or exceeds the California 2008 Building Energy Efficiency Standards requirements by 15%. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?</p> <p><b>Resolution:</b> If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows:</p> <ul style="list-style-type: none"> <li>a. “In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;</li> <li>b. “In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet or exceed the California 2008 Building Energy Efficiency Standards requirements by 15%. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement.”</li> </ul>
00168	01/15/2012	California Program Requirements (Version 3, Rev. 01)	Clarification	<b>Partnership, Training, and Credentialing Requirements</b>
				<p><b>Issue:</b> Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.</p> <p><b>Resolution:</b> A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the “ENERGY STAR Performance Path” section and will read as follows: “Partnership, Training, and Credentialing Requirements</p>

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				<p>Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying 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.resnet.us/energystar">www.resnet.us/energystar</a>."</li> </ul>
00169	01/15/2012	Florida Program Requirements (Version 3, Rev. 01)	Change	<p><b>Whole-house mechanical ventilation</b></p> <p><b>Issue:</b> Partners have noted that there is an inconsistency between Footnote 17, which reads "To ensure consistent exchange of indoor air, whole-house mechanical ventilation is recommended, but not required" and Section 1 of the HVAC System Quality Installation Contractor Checklist, which requires whole-house mechanical ventilation for all homes.</p> <p><b>Resolution:</b> To correct the inconsistency between Footnote 17 and Section 1 of the HVAC System Quality Installation Contractor Checklist, Footnote 17 will be removed from the Version 3 Program Requirements for Florida. That document, along with the Version 2.5 and Version 3.1 Program Requirements for Florida and the Version 3.1 HERS Index Target Procedure for Florida, will all be re-posted and labeled as Revision 02 of the Florida guidelines. The sole change being made as part of Revision 02 to the Florida guidelines will be to remove Footnote 17 from the Version 3 Program Requirements for Florida.</p>
00170	01/15/2012	Florida Program Requirements (Version 3, Rev. 02)	Clarification	<p><b>Conflicts with code or other external guidelines</b></p> <p><b>Issue:</b> Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home's HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?</p> <p><b>Resolution:</b> If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows:</p>

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				<p>a. “In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;</p> <p>b. “In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement.”</p>
00171	01/15/2012	Florida Program Requirements (Version 3, Rev. 02)	Clarification	<b>Footnote 7d - Minimum insulation requirements when using a total UA calculation</b>
				<p><b>Issue:</b> Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that “while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated.”</p>
				<p><b>Resolution:</b> To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 7d will be revised as follows: “...Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated...”</p>
00172	01/15/2012	Florida Program Requirements (Version 3, Rev. 02)	Clarification	<b>Partnership, Training, and Credentialing Requirements</b>
				<p><b>Issue:</b> Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.</p>
				<p><b>Resolution:</b> A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the “ENERGY STAR Performance Path” section and will read as follows:</p> <p>“Partnership, Training, and Credentialing Requirements</p> <p>Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying 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</li> </ul>

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				<p>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>.</p> <ul style="list-style-type: none"> <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.resnet.us/energystar">www.resnet.us/energystar</a>.</li> </ul>
00173	01/15/2012	Florida Program Requirements (Version 3, Rev. 02)	Change	<p><b>Total duct leakage limits</b></p> <p><b>Issue:</b> Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.</p> <p><b>Resolution:</b> To address partners' difficulties meeting the total duct leakage limit, the total duct leakage limit in the Ductwork section of Exhibit 1 will be revised as follows: "Total duct leakage ≤ 8 CFM25 per 100 sq. ft. of conditioned area."</p> <p>Footnote 12 will be shortened to only include guidance related to duct leakage testing protocols: "Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol only after all components of the system have been installed (e.g., air handler and register grilles). Leakage limits shall be assessed on a per-system, rather than per-home, basis."</p> <p>Remaining guidance related to testing duct leakage to the outside will be consolidated in Footnote 13, which will read as follows:</p> <p>"For homes that have ≤ 1,200 sq. ft. of conditioned floor area, measured duct leakage to outdoors shall be ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area. Testing of duct leakage to the outside can be waived if all ducts &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. Alternatively, testing of duct leakage to the outside can be waived if total duct leakage is ≤ 3 CFM25 per 100 sq. ft. of conditioned floor area, or ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area for homes that have less than 1,200 sq. ft. of conditioned floor area."</p>
00174	01/15/2012	Florida Program	Change	<b>Prescriptive Path – Window and Skylight Requirements</b>

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		<b>Requirements (Version 3, Rev. 02)</b>		<p><b>Issue:</b> Partners have noted that Exhibit 1 requires windows and doors to achieve a U-value <math>\leq 0.52</math> and a SHGC <math>\leq 0.32</math>. In contrast, Footnote 9 and Item 1.1 of the Thermal Enclosure System Rater Checklist indicate that windows and doors shall meet or exceed ENERGY STAR Program Requirements for Residential Windows, Doors, and Skylights – Version 5.0, which are more stringent. Furthermore, Footnote 17 states that all windows and skylights must be ENERGY STAR qualified or meet all specifications for ENERGY STAR qualified windows. As a result, there are conflicting requirements for the performance of windows and skylights.</p> <p><b>Resolution:</b> To resolve the conflicting requirements for the performance of windows and skylights, the first sentence of Footnote 9 will be removed and Footnote 17 will be revised as follows: “For Prescriptive Path: Homes qualified under this version of the guidelines are not required to comply with Thermal Enclosure System Rater Checklist Item 1.1, which states that fenestration shall meet or exceed ENERGY STAR requirements. Raters are permitted to mark ‘N/A’ for this Checklist Item.”</p>
00175	01/15/2012	<b>Florida Program Requirements (Version 3, Rev. 02)</b>	<b>Refinement</b>	<p><b>Prescriptive Path – ENERGY STAR qualified lighting</b></p> <p><b>Issue:</b> The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.</p> <p><b>Resolution:</b> To align with the terminology now used to describe ENERGY STAR qualified lighting products, the lighting requirement in the Florida Builder Option Package will be revised as follows: “Advanced Lighting Package (ALP) or ENERGY STAR qualified light bulbs or fixtures shall be installed in 60% of RESNET-defined Qualifying Light Fixture Locations”.</p>
00176	01/15/2012	<b>Florida Program Requirements (Version 3.1, Rev. 02)</b>	<b>Clarification</b>	<p><b>Partnership, Training, and Credentialing Requirements</b></p> <p><b>Issue:</b> Partners have asked for clarification about the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes.</p> <p><b>Resolution:</b> A section will be added to clarify the partnership, training, and credentialing requirements for builders, Raters, and HVAC contractors working on ENERGY STAR qualified homes. This new section will appear after the “ENERGY STAR Performance Path” section and read as follows:  “Partnership, Training, and Credentialing Requirements  Builders, Raters, and HVAC contractors must meet the following requirements prior to qualifying homes under these guidelines:</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</li> </ul>

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				<p>be found at <a href="http://www.energystar.gov/homesPA">www.energystar.gov/homesPA</a>.</p> <ul style="list-style-type: none"> <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.resnet.us/energystar">www.resnet.us/energystar</a>.”</li> </ul>
00177	01/15/2012	Florida Program Requirements (Version 3.1, Rev. 02)	Clarification	<p><b>Conflicts with code or other external guidelines</b></p> <p><b>Issue:</b> Partners have asked if Inspection Checklist requirements that are not included in a home because of a conflict with building codes should be included when determining if the home’s HERS Index is less than or equal to its ENERGY STAR HERS Index Target. For example, if a home is required to have slab edge insulation per Item 4.2 of the Thermal Enclosure System Rater Checklist, but slab edge insulation is prohibited by code, should the home be modeled with the missing insulation?</p>
				<p><b>Resolution:</b> If a conflict with code or other external guidelines prevents a home from including an energy efficiency feature required by the Inspection Checklists, that feature cannot be used to help the home meet its ENERGY STAR HERS Index Target under the Performance Path. If modeling the home as it will be built, without the efficiency feature, causes it to fail, then additional upgrades must be used to compensate for the missing feature. To clarify this, Footnote 5 will be revised as follows:</p> <ol style="list-style-type: none"> <li>“In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;</li> <li>“In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Qualification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation). Note that, under the Performance Path, a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement.”</li> </ol>
00178	01/15/2012	Florida Program Requirements (Version 3.1, Rev. 02)	Clarification	<p><b>Footnote 10d - Minimum insulation requirements when using a total UA calculation</b></p> <p><b>Issue:</b> Partners have asked whether the insulation requirements specified in Item 4.1 of the Thermal Enclosure System Rater Checklist apply to the attic edge only or the entire attic, noting that Footnote 10d states, in part, that “while ceiling and slab insulation can be included in trade-off calculations, the R-value must meet or exceed the minimum values listed in Items</p>

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				<p>4.1 through 4.3 of the Thermal Enclosure System Rater Checklist to provide an effective thermal break, regardless of the UA tradeoffs calculated.”</p> <p><b>Resolution:</b> To clarify that Inspection Checklist Item 4.1 defines minimum insulation levels that must be achieved specifically at the interior face of the exterior wall and not throughout the attic, Footnote 10d will be revised as follows: “...Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Thermal Enclosure System Rater Checklist shall be met regardless of the UA tradeoffs calculated...”</p>
00179	01/15/2012	Florida Program Requirements (Version 3.1, Rev. 02)	Change	<p><b>Total duct leakage limits</b></p> <p><b>Issue:</b> Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can consistently approach the threshold but that meaningfully more effort is required to move from just above the threshold (e.g., 8 CFM25 per 100 sq. ft. of conditioned floor area) to the threshold of 6 CFM25 per 100 sq. ft. of conditioned floor area.</p> <p><b>Resolution:</b> To address partners’ difficulties meeting the total duct leakage limit, the total duct leakage limit in the Thermostat &amp; Ductwork section of Exhibit 1 will be revised as follows: “Total duct leakage ≤ 8 CFM25 per 100 sq. ft. of CFA.” Additionally, because the total duct leakage threshold will now be the same for all homes, Footnote 22 will be removed.</p>
00180	01/15/2012	Florida Program Requirements (Version 3.1, Rev. 02)	Refinement	<p><b>Prescriptive Path – ENERGY STAR qualified lighting</b></p> <p><b>Issue:</b> The terminology related to ENERGY STAR qualified light bulbs has changed such that partners looking for ENERGY STAR qualified CFLs, LEDs, or pin-based lighting should now look for ENERGY STAR qualified light bulbs or fixtures.</p> <p><b>Resolution:</b> To align with the terminology now used to describe ENERGY STAR qualified lighting products, the lighting requirement in the ENERGY STAR Reference Design will be revised as follows: “ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations.”</p>
00181	01/15/2012	National Program Requirements (Version 2.5, Rev. 04)	Change	<p><b>Total duct leakage limits</b></p> <p><b>Issue:</b> Partners have expressed difficulty meeting the total duct leakage limit for homes with at least 1,200 sq. ft. of conditioned floor area (i.e., 6 CFM25 per 100 sq. ft. of conditioned floor area). Partners have provided feedback that this threshold is most challenging to achieve where building cavities are used as ducts and where ducts and air handlers are not completely sealed with mastic. For fully ducted and sealed systems, partners have indicated that they can</p>

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

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				<p>Appliances section will be revised to read in part:  “ENERGY STAR qualified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations.”</p> <p>This change also applies to the County-Level Reference Design for all Climate Zones and the Version 3 National Program Requirements.</p>
00185	01/15/2012	National Performance Path (Version 2)	Comment	<b>Duct insulation levels</b>
				<b>Issue:</b> Partners have asked what minimum insulation level is required for supply ducts in unconditioned space.
				<b>Resolution:</b> While EPA recommends that all supply ducts in unconditioned space be insulated, there is no mandatory requirement to insulate them under Version 2 of the National Performance Path.