



Conservation Services Group

Comments on Proposed
Home Performance with ENERGY STAR Program Revisions

Conservation Services Group
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submitted by:

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Overview

Conservation Services Group submits this response to EPA's and DOE's request for feedback on the November release set of eight draft proposal documents related to the Home Performance with ENERGY STAR program (HPwES.) Our comments are presented in tabular format, with specific page and line numbers indicated by proposal. Where we have general notes on a proposal, it is offered at the top of the list, without specific references. We have grouped the proposals together based on what we see as the shared themes of Quality Assurance, Reporting, and Field Work. Where specific language is offered, additions are indicated by underline and ~~deletions by strikethrough~~.

We appreciate EPA's efforts to incorporate suggestions from the first round of comments, and also your work on expanding draft guidelines to be more comprehensive of the whole HPwES cycle. The guidelines are an important effort to provide consistency and diligence to HPwES on a national scale. It should be unsurprising, however, that with so many technical and administrative details being addressed, there will be a divergence of views on how best to achieve those goals. We hope that our comments will be helpful, and we look forward to working with EPA and DOE in whatever capacity we can toward that end.

Quality Assurance (Proposals 1, 6, and 7)

Proposal 1: Proposed Home Performance with ENERGY STAR® Quality Assurance Requirements – Draft Version 02	
page/line	Comments
1/37-39	The requirement to review "All job reports..." might be impractical for programs with high participation rates. Sponsors should be allowed to establish an appropriate sampling procedure.
2/13-14	We believe that providing feedback to contractors should be a requirement rather than a recommendation. One of the fundamental points of a QA process should be improving job performance, not simply penalizing deficient workmanship.

Proposal 6: Home Performance with ENERGY STAR® In-field Quality Assurance Inspection Protocols – Draft Version 01	
General –	
There should be criteria developed for qualification of the QA inspector. QA inspectors should be selected after having demonstrated detailed and comprehensive understanding of program requirements and procedures, and ability to perform visual and diagnostic assessment.	
page/line	Comments
3/28	Revise as follows: "Verification that the contractor <u>and/or consultant</u> performed diagnostic test(s)..." Contractors may sub out some of this work.
3/40-41	Central air conditioning systems should be checked to verify that charge and airflow are matched to operate at highest possible efficiency.
3/42-44	Combustion efficiency test should be done on all replacement heating units

	to ensure that new equipment is properly tuned.
4/18	The explanation of the proposed Contractor Scoring Protocol is unclear. Revise as follows: " Through this scoring methodology a contractor would receive the lowest score for which they received a "Yes". <u>The scoring protocol presents five sets of statements that characterize a contractor's work. The evaluator begins with the first set (Score 0) and answers each question either "Yes" or "No." If the contractor receives a "Yes" answer to any question, they receive a score of zero. The evaluator continues to the next set of questions and repeats the process. The contractor's final score is the lowest for which they receive any "Yes" response.</u> " We also believe that the criteria should be more fully defined; as they stand now many are quite subjective. For example, what constitutes a "serious...gas leak" or a "serious moisture issue?" Also, space should be provided for recording detailed notes on specific situations that are generally outlined in many of these items.
4/26	Contractor review scope 2 includes identifying a deficiency in which "HVAC equipment not installed to manufacturer's specifications or not operating properly." We presume that the definition of "operating properly" will be determined by the program sponsor. Is that EPA's intent, or is there a specific standard that should be cited?

Proposal 7: Home Performance with ENERGY STAR® Contractor Feedback and Corrective Action Guidelines – Draft Version 01	
page/line	Comments
2/15	Typo: "The quality assurance component of the HPwES program serves a duel <u>dual</u> purpose: ..."
2/37-38	The definition of "imminent health and safety threats" must be very clear and specific, and should be derived from referenced standards. (e.g., 200 PPM CO in living area; gas leaks over a stated threshold, etc.)
2/39	Is the QA inspector meant to contact the contractor and then remain onsite until the contractor arrives and corrects the imminent threat? How long should they be expected to wait before moving to the alternatives or taking independent remedial action or warning the customer?
2/40-42	<ul style="list-style-type: none"> • Instructing the customer to abandon the site might be too extreme. The appropriate recommendation should be based on the specific situation, and follow guidance in BPI standards. (After all, QA inspectors should have same level of training and should be implementing the same protocol.) • QA inspectors must recognize that that they could be called upon to perform work in a customer's house under these extreme circumstances, and must therefore hold any necessary licenses and carry appropriate insurance. • There is a possible issue if the safety threat was not caused by or even missed by the contractor. It is possible that some situation might occur that had nothing to do with the HPwES work, that is observed/measured during QA inspection, in which case the contractor is not necessarily

	responsible for repair. In some cases responsibility may be disputed. There should be a process established by the program sponsor for quickly addressing such disputes.
4/20	Revise as follows: "A <u>confidential</u> probationary period shall be used for contractors as the initial step towards de-listing."
4/32	There should be an intermediate step of contractor <i>suspension</i> , rather than moving directly from probation to expulsion. The suspension period should include mandatory training. Also, the disciplinary process should have a defined procedure for appeal, including mediation if necessary. There should be a clearly defined dispute resolution process in place by the Program Sponsor. This should include a third party arbitrator who makes the final decision when all attempts have failed to address the concerns by all parties involved. Program Sponsors should have pool of financial resources available to help resolve disputes especially when Home Performance contractors go out of business.

Proposal 8: Proposed Home Performance with ENERGY STAR® Customer Feedback Guidance – Draft Version 01

No comments.

Reporting

Proposal 2: Home Performance with ENERGY STAR Sponsor Reporting Requirements – Draft Version 02

page/line	Comments
1/41	Why is the annual report due to EPA in mid-December? We presume that this is to allow EPA to prepare its national review, but it will effectively be a report on eleven months of activity. Also, it seems to conflict with the timing of the fourth quarter report due at the end of January.

Proposal 4: Home Performance with ENERGY STAR Certificate of Completion – Draft Version 02

No comments.

Field Work

Proposal 3: Home Performance with ENERGY STAR Comprehensive Home Assessment Guidelines – Draft Version 02

General –

A general suggestion that we offer in several places in the following notes is that some diagnostic testing should not be required during the HPA, but instead should be allowed to be performed as test-in by the contractor before work begins. EPA recognizes this in the case of duct leakage, but not for whole house leakage testing. We believe that the initial assessment should be able to take advantage of visual

inspection that clearly identifies a recommendation for improvement. (e.g., large attic bypasses.)	
page/line	Comments
1/32	typo: "The proposed HPA guidelines (pages 3 - 8 of this document) was developed..."
3/5-8	Add to the end as follows: "(Recommended) Conduct homeowner telephone interview to collect basic information on the home and the homeowner's concerns and goals, as well as to obtain energy consumption history and start disaggregating bills in order to begin assessing home's performance. <u>This should include a request to the homeowner to sign an energy usage data release.</u> "
3/18	Raising such a specific health issue might be problematic both for sponsors and EPA; it implies that the program can diagnose and treat health-related problems, which contractors are not necessarily trained or qualified to do. In a related issue, we are moving away from this kind of slippery slope, by using terms like "combustion testing" instead of "combustion safety," in an effort to most accurately convey the work that is being performed. CSG's Massachusetts Home Performance program does not raise this in the homeowner interview.
4/26-28	Revise as follows: " Draw <u>Sketch</u> house floor plan with orientation, <u>and</u> exterior measurements; <u>calculate floor area,</u> measure volume, and <u>calculate</u> air change <u>ventilation air flow</u> requirements per ASHRAE 62.2-2007 later, or other methodologies listed as acceptable in BPI's current Technical Standards for Building Analysts."
4/45-51	Add two exceptions to the 1:300 attic ventilation allowance: 1. Where direct evidence of outside moisture intrusion exists at existing vents, alter or remove vents that show evidence of moisture intrusion and do not add more. 2. Where existing or planned retrofit includes unvented roof design with cavity spray foam (cathedralized attic) or foam sheathing above roof deck (compact commercial type system.)
5/11	Reference to section number of BPI standard is too specific, since section numbers might change over time. Also reference should note both defaults and de-rated, "effective R-value" tables.
5/32 to 6/16	As the current draft reads, it seems that Blower Door testing would be required during the HPA. We believe that this is unnecessary and unreasonable in many cases, and that this requirement be changed to a recommendation for the HPA. Our experience in thousands of homes has taught us that a visual assessment is often adequate in order to recommend air sealing improvements. We agree that measuring air leakage (in the building enclosure and duct system) should be required prior to work beginning, and again after work is complete (test-in/test-out.) But those measurements can be performed by the contractor and not necessarily by a consultant who might be performing the HPA. It would be more appropriate to use language like that found in Section F.1.a. for duct leakage testing: " Prior to installation of measures, perform diagnostic

	tests..."
5/32-35	Revise as follows: "Blower Door Test (do NOT conduct this test if there is a danger that dangerous evidence of exposed and/or friable contaminants (asbestos, lead dust, bio-aerosols or other dangerous materials), can that <u>might</u> become airborne or otherwise <u>be</u> introduced into the living space by conducting the test.)"
6/1-16	Move this section to item #6 (Mechanical Ventilation) on page 8, and place under new bullet " <u>Determine ventilation rate using one of the following approaches:</u> " Once moved, the first bullet should read " <u>Provide whole house ventilation in the work scope per ASHRAE 62.2-2007 Table 4.1 or Equation 4.1.</u> " (Note that no blower door test is required for this approach.) Second, ventilation credit or exemption. We suggest eliminating the BAS concept, which will be phased out of the upcoming BPI standard; if needed, simply refer to "legacy approach during phase-out period" as determined by BPI. Don't refer to 62-1989, it does not apply to single-family homes.
6/9-11	As noted elsewhere, eliminate the reference to specific section numbers, which might change. (In this case, Section 7.3 and Appendix A.) Also, don't refer to "draft" BPI Building Analyst Standard.
6/18	Revise as follows: "Attic (doesn't have to be during blower door test): openings in..."
6/22	Revise as follows: "Basement (doesn't have to be during blower door test): openings..."
6/26	Move section b.iii) up immediately after 4.a.ii. (page 5) Renumber it as 4.a.iii, and renumber subsequent parts of 4.a. Also, delete "(best during blower door test)."
6/49	Forced hot air systems should have temperature rise test performed and compared to manufacture specs. (Note: test is accurate only on systems without AC coils in place.)
7/8	It should be required that central air conditioning be checked for charge and airflow to determine if they are in balance to operate as efficiently as possible.
7/10	Although equipment <i>capacity</i> may be guessed by model, <i>efficiency</i> cannot be. (SEER/EER are rarely on nameplate in any fashion.) Use nameplate model number, and recommend looking up in ARI directory.
7/11-12	Revise as follows: " Note any issues around compressor/fan unit in yard, such as open exposure to sun <u>recirculation/air flow obstruction from built features or plantings</u> or problems with <u>coil blockage from</u> leaves, twigs or other debris"
7/22	Add another item: inspect for condensation moisture or damage from condensation on exterior of duct liner (in hot humid climate) or interior of A/C only ducts (in cold climate) for ducts outside conditioned space.
7/23	If the duct leakage test is only recommended, then why set a limit?
7/29-32	Revise as follows: "(Recommended) Conduct a test to determine adequacy of air flow, using one of the following methods: Duct Blaster® or other whole duct pressurization <u>plenum pressure-matching air flow</u> test, flow plate, flow

	hood, static pressure test, and/or temperature rise/drop <u>split</u> tests"
8/8	The section title is "Mechanical Ventilation" but it currently covers only spot ventilation with no reference to whole house ventilation options (e.g., Supply, ERV, continuous duty exhaust only.) We have suggested that D.4.a.iv be relocated here. Once that is done, some additional requirements for the fresh air ventilation will be needed to address ducting, continuous duty rating, sound levels, and intermittent operation, with appropriate references to 62.2.
8/15	Revise as follows: "Educate homeowner on benefits of <u>extended operation using</u> timer-operated bathroom exhaust fan."
8/17	A sub-section should be added to section F to cover gas leaks.
8/25	If appliances are to be replaced with direct-vent or power-vented equipment as part of the work scope, there is no need to test them for combustion safety.
8/28	Update as follows: "ASTM Standard E1998-99 <u>02</u> , "Standard Guide for Assessing..."
8/35	Specify Annex H of NFPA 54.
9/4-5	Revise as follows: "Check basement and crawlspace for moisture deposition or damage and conditions that promote fungal growth on basement floors,..." Despite our having made the specific suggestion in the last round of comments to use the phrase "conditions that promote fungal growth" in lieu of "presence of mold," we suggest that this be struck altogether. Our rationale is the same as we offered above relative to asking homeowners about allergies; it might unrealistically lead the client to believe that the contractor or consultant is a mold remediation expert when they are not. Fundamentally the assessment is trying to discover moisture or evidence of moisture, and mold is one clear indicator.
9/12	Revise as follows: "If there is evidence of high moisture levels in the living space, check dark <u>for discoloration on walls</u> ..."
9/22-25	Revise as follows: " It is required that the set of recommendations be reasonably comprehensive in identifying <u>Identify the</u> measures that save energy, address combustion safety or moisture concerns or are intended to improve the comfort and durability of the home;" (The term "reasonably comprehensive" is too imprecise.)
9/26-27	Revise as follows: "It is required that the recommendations be accompanied with a rough <u>an</u> estimate of..."
10/13	Air leakage test results. As mentioned above, this should be removed as a requirement, and therefore not mandatory on the Summary Report. If a test is performed, then results can be reported.
10/27	As above (9/22-25), the term "reasonably comprehensive" is imprecise.

Proposal 5: Home Performance with ENERGY STAR® Post-Installation Test-Out Guidance – Draft Version 01	
Smoke and CO detectors (CO detector should be required when home has any fossil burning appliance or attached garage) should be required for all Home Performance projects and these items should be added to the Test-Out form.	
page/line	Comments
2/10 to 3/10	The various approaches for determining compliance with fresh air ventilation requirements should not be detailed here. Only a summary should be shown, with a reference to BPI standard, the HPA document (P3,) or both. As an example, Section 1.3 of P6 gives a more appropriate level of detail, although some more language specific to the purpose of test-out needs to be included. The value of this approach is that it avoids the need to continuously update EPA Guidance documents to keep pace with changes to the referenced standards.
3/12 to 4/12	The detail provided on test-out procedures should be in the pre-test requirements, not here. More appropriate to this document is to state that appropriate test-out procedures are conducted to confirm that (1) any pre-test condition has been repaired, and/or (2) that a pre-test non-action condition is re-confirmed after work. Cite BPI standards and/or HPA (P3) document. This document should only summarize, i.e. "repeat/confirm the following tests and inspections: "
3/16	Revise as follows: "... safety <u>operating</u> ranges..."
3/18	Looking slightly ahead to the forthcoming HPA BPI standard, draft testing is not likely to be included. (We anticipate that it will remain in the heating standard.) In any case, it should not be mandatory here if it isn't in the pre-test assessment.
4/16-21	We disagree that the temperature drop and static pressure are acceptable methods for testing out. All air flow testing should be quantifiable (e.g., flow plate, plenum pressure matching or flow hoods when there is minimal duct leakage.) Temperature split and the like are dependant on other factors such as correct charge, and do not quantify air volume to compare to manufacturers specifications.
4/19	Revise as follows: "... industry flow plate <u>and plenum pressure matching</u> , flow hood,..."
4/20	Contractor is asked to indicate if flow test is pass or fail, but no standard is given for making that determination.
4/27	For pressure pas tests you suggest using an average of test-in and test-out results, which is not a generally accepted of performed approach. It is too open-ended, and subject to interpretation.