

Q&A Session Notes
May 28, 2009

Question: Will there be any television advertisements promoting the new more energy efficient ENERGY STAR Homes to help inform home buyers? Maybe some of the stimulus money?

Answer: There are no plans to advertise the new guidelines once they are finalized. At this time, EPA does not have access to the stimulus money. However, Jon Passe, the Communications Coordinator, leads the Outreach Partnership on an annual basis, which helps partners promote ENERGY STAR qualified homes in a local market. It is likely the Outreach Partnership in 2011 will reflect the new advantages.

Question: As states strengthen their energy codes what will be the specific impact on ENERGY STAR? What if a State adopts ENERGY STAR as its code? Will ENERGY STAR requirements vary from state to state, and if so, does this not create an uneven playing field in terms of benefits that are tied to the ENERGY STAR Designation?

Answer: ENERGY STAR qualified homes specifications are at least 15-20% more efficient than local code. Where state energy codes approximate or exceed EPA guidelines, ENERGY STAR has to raise the bar further to stay above code.

While EPA has not responded when towns or counties require ENERGY STAR as code, EPA will respond if a state is considering the adoption of ENERGY STAR as code. Furthermore, even though ENERGY STAR guidelines sometimes differ across state lines, these differences fall in-line with variation in building codes as set by individual states.

Comment: North Carolina is considering an increase in their code requirements (30% more than IECC). How will this affect ENERGY STAR and builder participation?

Response: EPA will work with stakeholders in North Carolina who are concerned about the new guidelines. Even though ENERGY STAR is a voluntary program, many builders are motivated to join because it will benefit their business. In a sense, ENERGY STAR addresses "enforced code" which is actually implemented vs. "theoretical code" that is required but not always enforced.

Comment: How can local ENERGY STAR programs take precedence while ENERGY STAR simultaneously requires above-code performance?

Response: For new homes, ENERGY STAR has always supported local ENERGY STAR programs even if they require more stringent items. However, in these instances, EPA has always had to allow participants working outside of the local program to work with EPA's national guidelines.

Comment: Are there some items that are not included as part of code and is there a document that outlines them?

Response: EPA does not maintain a list of widely varying code requirements. For instance, California addresses lighting while most codes are restricted to heating, cooling, and hot water energy use. However, items such as thermal bridging, quality HVAC installation, mechanical ventilation, moisture control, and insulation inspection are not typically required by building codes but included in the proposed 2011 ENERGY STAR specifications.

Comment: Want to learn more about the HERS Target vs HERS Index

Response: The Index is the score from the rater's software tool that simply measures energy performance relative to the HERS reference home. The ENERGY STAR HERS Target is the performance level that must be achieved after the home is modeled with the Reference Design specifications and adjusted for size. A projected rating is when a rater works with a builder and based on home plans determines compliance with the HERS Index 80 or 85 threshold. The ENERGY STAR Reference design is a set of specifications that are applied to each individual house plan and results in a HERS Index Score that becomes the target. The benefit of this new variable vs. fixed HERS Index threshold is it mitigates unintended impacts from large variations in HERS Index scores for the exact same bundle of energy efficiency. Raters will have to model the home twice, once for with the ENERGY STAR Reference Design specifications, and another for the proposed design. EPA will investigate any potential considerations this process may need for homes qualified under sampling.

Question: Will a HERS model be required rather than having a choice of the compliance path method?

Answer: Nothing changes. There will still be two paths for qualifying a home. Builders can use either the prescriptive path which uses the ENERGY STAR Reference Design specifications in place of the current ENERGY STAR Builder Option Package, or the performance path, which uses the ENERGY STAR Reference Design to develop a Target Score for each proposed design.

Question: Why isn't spray foam being recognized?

Answer: Spray foam is now more recognized by the building industry for its special advantages. However, recommending technologies is outside the boundaries of what EPA does.

Question: Can you clarify how home size will affect ENERGY STAR compliance?

Answer: The house size requirement is first applied by determining each home's size relative to an average home size as defined on the Benchmark Home Table specified by number of bedrooms. The size adjustment factor is a ratio the Benchmark Home size to the proposed home size taken to .25 exponential factor. The ratio will always be less than one for homes larger than the Benchmark Home which will lower the ENERGY STAR Target Score needed to qualify as ENERGY STAR. This factor is intended to more closely equate the carbon footprint of all homes qualified as ENERGY STAR by compensating for differences in house sizes.

Question: With so many proposed changes why is the comment period so short?

Answer: EPA feels 9 weeks is a substantial amount of time for a voluntary label program specification review. Finalizing the new guidelines is a high priority so there is more time for industry to adapt and transition. EPA will be flexible with the comment period timeline if there are significant issues with the proposed guidelines determined during the current vetting process.

Question: The Framing Checklist seems to require extensive review and frame walk time to verify. Substantial added cost a concern? Also, there is a lot of language that seems to be subjective.

Answer: The framing inspection can be concurrent with the Thermal Bypass inspection. Practiced inspections have shown an average increase of about 20 minutes.

Additionally, inspections are not intended to scrutinize every single detail to a very intense level of compliance. Rather, the checklists are designed to help find more serious and egregious violations. The intent is not perfection. At least initially, raters may have to spend more time educating builders to ensure compliance with the new guidelines.

EPA uses "subjective" terms in guidelines to keep the checklists simple and not overbearing. The language is intentionally written this way to give raters discretion for whether or not an item meets ENERGY STAR guidelines. Similar to the Thermal Bypass Checklist guide, EPA will create supporting documents for the new checklists which will be more in-depth and include real-world examples for reference. If there is better terminology to use, to please notify EPA.

Comment: With so many new raters in the industry, they don't have the expertise to make determinations when items are subjective.

Response: RESNET and EPA are collaborating to incorporate the new checklists into RESNET's standards and training curriculum.

Question: What is the relationship between EPA ENERGY for New Homes Program and the Mortgage Industry National Home Energy Rating Standards? Are the procedures developed by the RESNET different from the EPA's above (how so)? Is the procedure under which the EPA ENERGY STAR for New Homes Program is developed considered consensus?

Answer: The ENERGY STAR guidelines are very different from RESNET's Standards. EPA strives to develop the new guidelines that set the bar for performance of a voluntary program while RESNET is a rating industry oversight organization that is setting standards for technical elements, ethics, and training to help ensure quality assurance with HERS rating services.

Question: We understand the shift in energy requirements for homes, however does EPA have a sense of the rough average HERS index of qualifying homes under this approach. As an example, once you have 5,000 homes rated under this system what would the average HERS index be 80? 70?

Answer: When all improvements are factored in, homes that qualify under the proposed 2011 guidelines, the average HERS Index Score is approximately 65 including requirements that are not included in HERS software evaluations (e.g., Thermal Bypass details, best practice HVAC installation, and efficient hot water distribution). This is based on a manual calculation augmenting HERS software evaluations. The HERS Index score for the 2011 specifications without the manual corrections are, on average, approximately 77. This score fluctuates plus or minus 10 depending on other factors such as house size, fuel type, aspect ratio, location within a given climate zone, etc.

Q&A Session Notes
June 11, 2009

Question: We are concerned that none of the selected climates used in genotypes do not represent the climate in Colorado. How will this affect qualified homes in our area?

Answer: This process is still relying on the HERS methodology. Taking into account all the requirements, the software should generate a target score. The builder can make changes as needed, as long as the target score is met. Homes must meet a score that is based on the climate zone and Reference Design Specifications applicable to that location. This ensures the home will need to meet a performance score that is appropriate for that area. EPA references IECC climate zones with the exception that window specifications are derived from the National Fenestration Rating Council (NFRC).

If there are any particular items that are not cost-effective for your climate, please notify EPA.

Question: Will in-field ventilation fan flow measurements be required, as is indicated by Footnote #2 to the IAQ Checklist?

Answer: Ventilation fan flow measurements will be required to ensure the system is effectively delivering ventilation AND fresh air. Studies show that poor installations can lead to significantly poorer performance of the system.

Comment: Please provide a clarifying definition for conditioned floor area.

Response: For a definition of conditioned floor area (CFA), EPA defers to RESNET. EPA will accept modeling of homes with crawlspaces similar to the process commonly used by HERS raters. This method simply adds the volume of the crawl space to the adjoining spaces above, but does not increase the CFA.

Question: When you say 80% of sockets need to have ENERGY STAR bulbs, does that also mean you need to have the twist ENERGY STAR base, or can you install standard bases and put ENERGY STAR bulbs in at least 80% of sockets?

Answer: For the proposed new guidelines, sockets do not have to be pin-based. Conventional bulbs qualified as ENERGY STAR can be used. However, if the Advanced Lighting Package will be used to satisfy the energy efficient lighting requirement, the sockets will have to be pin-based.

Question: Does the proposed 2011 spec require duct leakage testing by a 3rd party if some is in unconditioned space? Supply ducts only, or also return?

Answer: Under current and proposed new guidelines, all ducts must be tested to ensure leakage requirements are satisfied. The only exception is when homes meet exceptional blower door requirements (<1.5 CFM50) and all ducts are within conditioned spaces. Both supply ducts and return ducts must be tested.

Question: Why is the part of the process relating to the HERS Index target getting SO complex? I think that it will hurt the participation level in this important program.

Answer: EPA believes that the concern about complexity is primarily a perception issue. Once the new guidelines have been incorporated into modeling software, the process for qualifying a home will be simpler. Even if software is not reconfigured to accommodate this new process, raters and builders will just have to model the home two times; once using the Reference Design specifications and a second time simply editing the first software file with their modified values.

Comment: Most builders will not perceive this new process as simple.

Response: The new process will reduce confusion and complexity for the homebuyer. There will be no need to explain a HERS index scoring process to consumers anymore. Explaining to a homeowner how to determine a HERS index can be difficult and complex. With the new guidelines, ENERGY STAR qualified homes can be marketed as a comprehensive package of features that incorporate building science to ensure a high performing home.

A HERS index involves tradeoffs and calculations that are not easily understood by homeowners. As a result, it has always been difficult to describe exactly what features go into a home qualified as ENERGY STAR. The new guidelines make this simpler.

Comment: My observation is that homeowners and builders can understand “% more efficient than code” better than anything else.

Response: Homes can still be advertised as more efficient than code but there will no longer be a specific number under the proposed new guidelines.

Comment: EPA should find alternative ways for homes qualified under the new guidelines to be effectively marketed to homeowners and builders.

Response: EPA modeled homes using the Builder Option Package for different cities and found as almost a 20 point difference in HERS indexes due to variations in fuel, foundation type, house size and other factors. It is more difficult for homeowners to understand how these other factors will affect the performance of their home. Instead, it will be simpler to describe how all the new features will improve the home.

Question: We are currently working with Oncor regarding their multifamily program in 2010 and beyond. Our program is a commitment based program, so a large housing complex can theoretically be enrolled in the 2010 program, but not be completed until 2011 or later. Regarding multifamily and the time frame to complete a job, has the EPA determined when a multifamily complex must meet the 2011 specs? For instance, if a developer received a vertical permit date in June 2010, but the complex is not issued a certificate of occupancy until sometime in 2011 - does it confine to the current standard or the 2011 standards? Typically, a complex can take 6 months or more for when the first unit is complete to when the last unit of the complex is complete?

Answer: Multi-family must also transition to the new guidelines. EPA anticipates the guidelines to be finalized sometime in the fall of 2009. Builders and raters will have from now until Jan 1, 2011 to prepare for the new guidelines. Expedited permitting might be an option for builders that need additional time to adjust. Alternatively, implementing the new guidelines sooner rather than later may alleviate issues from occurring later on. Note that homes completed after June 30, 2011 must be qualified under the new guidelines, regardless of the date of permitting. Builders should consider this timeframe to ensure a smooth transition.

Question: What is the cost impact on builders?

Answer: Under the new guidelines, the estimated increased cost for builders ranges from \$2000 to \$4000 for an average size home. Federal and local tax credits can help offset these costs. On average, these costs add an additional \$10 to \$20 per month on a mortgage; when you take into account an anticipated savings of \$30 to \$50 per month, that is positive cash flow the day a homeowner moves in. As the price of fuel increases, the savings become more substantial. Only cost effective measures are considered and incorporated into ENERGY STAR guidelines.

Question: Will the Nano insulating paint that achieves 20% to 40% energy savings be permitted in the program?

Answer: Unless a national laboratory or other significant study can definitively show that Nano insulating paint is cost effective and reliable in saving energy, it will not be included in the proposed new homes guidelines.

Question: Have you been talking to RESNET about new training requirements?

Answer: RESNET and EPA are collaborating to incorporate the new checklists into RESNET's standards and training curriculum.

Comment: 2x6 cost will be a substantial cost increase.

Response: 2x6 is not required. A builder could do 2x4 with rigid insulation wrap as an option.

Comment: The homebuyer won't pay for the extra costs so the builder will have to absorb it. This will affect number of builders participating.

Response: This new high-performing home adds a lot of value. The additional value the new guidelines bring must be explained to the prospective homebuyer.

Comment: I understand and appreciate the importance of building science. However, I believe this is too aggressive right now.

Response: Your feedback is appreciated. Please provide specifics when submitting comments.

Question: Are the new guidelines set in stone?

Answer: Nothing is set in stone. EPA wants comments and feedback.

Q&A Session Notes
June 17, 2009

Question: [The ENERGY STAR program has seen an increase in market penetration over the last few years.] Where is the increase in market penetration coming from (production builders, small builders)?

Answer: Most of the increase is coming from small-volume builders.

Question: What is the anticipated market share of ENERGY STAR qualified new homes after ES2011 is implemented in its proposed form?

Answer: EPA expects the market share of ENERGY STAR New Homes to go down in 2011. 15 percent is a guess.

Question: Can the non-energy costs be broken out separately?

Answer: The non-energy costs cannot be separated because they are a critical component to the other energy efficiency measures. For example, water management and ventilation details not associated with energy savings must be included in highly efficient homes because they have very little tolerance to drying and insufficient fresh air infiltration.

Question: Utilities in our area are having difficulty quantifying the energy costs; do you have any suggestions on how they can achieve this?

Answer: There are several documents on the ENERGY STAR Web site which show calculations on how energy savings for the proposed new guidelines were determined. They may be able to differentiate between energy and non-energy costs using these documents, but again, they are inextricably linked. For more information about cost savings, visit www.energystar.gov/homes.

Question: What is the purpose of including measures without any energy-saving benefit (e.g., IAQ, water managed construction)? How can energy efficiency program sponsors justify including these measures in their new homes programs to their regulators?

Answer: Under the proposed new guidelines, homes without non-energy saving features may experience issues with mold, moisture, and air quality. These features are already incorporated by many builders and do not add significant costs. A complete building science package ensures consumer expectation about ENERGY STAR will not be undermined. Again, the non-energy measures are inextricably linked to the energy efficiency measures to ensure the house does not fail air quality and durability concerns.

Question: What is EPA's definition of conditioned floor area (CFA)?

Answer: EPA defers to RESNET standards for the definition of conditioned floor area. Crawlspace require special treatment.

Comment from a rater: In modeling a home, crawlspace floor area is excluded but volume is included.

Question: On the framing checklist, are three stud corners acceptable?

Answer: Where optimum value engineered (OVE) framing is chosen as the Quality Framing option, conventional three-stud corners cannot be used. Instead, a furring strip attached to the corner stud should be used to support the sheetrock are acceptable. Some builders use larger nailing strips which leaves less space for insulation. EPA may add clarification about size of stud that can be used on the nailing strip. Three-stud corners can be used where rigid insulation sheathing is used to meet the Quality Framing checklist.

Question: On the framing checklist, how is R-5 achieved in 2x4 depth headers?

Answer: This may be achieved by using a higher R-Value polyiso board. EPA will look further into the constraints with this requirement.

Comment: Many production builders will have difficulty redesigning their framing designs to satisfy the new guidelines.

Response: Builders do not have to redesign their framing designs if they choose to use rigid insulation sheathing. The intent of the Quality Framing Checklist to mitigate serious conductive losses associated with commonly used framing techniques. This may require some change, but the performance benefits should be significant.

Question: Can insulated sheathing be utilized in only the non-compliant wall sections to achieve compliance with 2.1.3 and 2.1.5 instead of continuous sheathing on the whole building?

Answer: EPA will investigate the effectiveness of a hybrid approach.

Question: On the HVAC Contractor checklist, how will HVAC manufacturers that do not participate with ARI be addressed in regards to the requirement of ARI certification number requirement?

Answer: EPA will check with ACCA how to address this issue.

Question: On the HVAC Contractor and Rater checklists, do manual J, D, & T need to be submitted and reviewed, or just verified on the Rater's checklist?

Answer: The rater does not have to review the calculations but must ensure the calculations were completed. Thus, they should be given a copy of the calculations to verify they were performed.

Question: On HVAC Contractor checklist, under Equipment Capacity, what does "field value" refer to on the HVAC checklist? Measured capacity or ARI capacity? How is field capacity measured?

Answer: EPA will revisit these items and provide a response at the end of the comment period.

Question: The IAQ checklist requires that "If present, intermittently-operating ventilation system designed to automatically operate at least one hour out of every twelve." How can this meet 62.2?

Answer: The rater will need to calculate correct CFM and make sure the intermittent operation delivers the same volume of ventilation in the same number of hours. These only involve simple mathematical calculations.

Question: On the TBC checklist, is face stapling of batt insulation required for Grade I installation?

Answer: EPA defers to RESNET standards for batt insulation stapling requirements. Currently, inset stapling is permitted. However, the propensity for actual installations to not meet RESNET requirements means the rater and builder should have a discussion at the very earliest stages of a project to discuss risks associated with failure when using typical inset stapling installation.

Question: Could we see some 'real life' examples of the new Energy Star Reference Design Home in action? A variable HERS index (some may call it a moving target) will be difficult to sell to new builders and difficult to explain to existing builders. We need to know what our new 'elevator' speech will be if not "Energy Star is 15% above code".

Answer: The new guidelines create a simplified process for sales and training. Homes qualified under the proposed new guidelines will be easier to market to homeowners. Builders will be able to say their homes are comprehensively protected from moisture, include properly installed insulation that provides an effective thermal blanket, engineered and verified to include properly installed HVAC system, and equipped with a comprehensive energy component package including ENERGY STAR qualified appliances, lighting, and fans. It is more complex and uncertain to describe what features are included in the home under current guidelines. Additionally, builder interaction with suppliers will be simplified because there will be a much more consistent set of ENERGY STAR requirements.

Question: IECC 2009 doesn't allow building shell trade downs in lieu of high efficiency mechanical equipment. I'd like to see a similar initiative with ENERGY STAR. What do you think?

Answer: EPA agrees but is also confident that the simulated performance method eliminates trading off home envelope improvements with higher efficiency mechanical equipment. While the proposed new guidelines reduce these tradeoffs, EPA wants to retain some flexibility for builders.

Question: What R-value, U-factor is required for pull down/disappearing stairs to an unconditioned attic?

Answer: Similar to attic knee walls, pull down/disappearing stairs to an unconditioned attic have to be R-5.

Comment: We are concerned that the surrogate cities used to create the 2011 guidelines does not accurately reflect homes in Wisconsin. Builders are asking for an accurate reference.

Response: There are only so many cities that can be studied when determining New Homes guidelines. If there is a particular detail that won't hold up in your climate, please submit these before the comment period ends.

Question: Advanced Energy's study on ENERGY STAR New Homes is often referenced. Was this study used to create the proposed new guidelines?

Answer: The Advanced Energy study was not used in drafting the proposed new guidelines.

Comment: Most items on the proposed new checklists can be realistically incorporated into homes but there is some concern that with more requirements, there are more ways a home may fail qualification.

Response: The intent of the checklists is not to be punitive by failing builders who sincerely try to meet guidelines. Items that are not perfect should be an educational opportunity for builders and HERS Raters to work together constructively for continuous improvement. If any items on the checklists are unreasonable, they should be submitted before the comment period ends.

Comment: Creating requirements but then allowing raters to permit non-compliance seems contradictory.

Response: Every item on the checklists is mandatory for a home to qualify. An honest effort (e.g. achieving an 85%) that is not quite perfect should not be failed. A half-hearted attempt should not be permitted to pass.