

EPA Responses to Comments on ENERGY STAR Certified Manufactured Homes Version 2

EPA has posted a compilation on its web site of all comments received during the comment period, which ended May 6, 2019, for its draft ENERGY STAR Certified Manufactured Homes Version 2 program requirements.

This document contains a summary of these comments, along with EPA's response to each point raised and the resulting policy change, if any.

When similar comments were received from multiple respondents, EPA has consolidated these ideas into a single summary bullet. However, EPA has attempted to retain all unique comments received, including those submitted by a single respondent.

*The Environmental Protection Agency
is not responsible for any typographical errors or omissions.*

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ID	Comment Summary	EPA's Response	Outcome
Package Inputs			
1	<ul style="list-style-type: none"> One respondent recommended that packages with R-11 walls be changed to R-13, noting that the lowest wall insulation value in the model IECC code has been R-13 since at least 2006. They also recommended that, even if pursuing the Uo compliance path, R-13 should be a mandatory minimum wall insulation value. 	<ul style="list-style-type: none"> EPA notes that the minimum wall R-values are based on the values used to represent the HUD code in the 2016 DOE Proposed Rule for Manufactured Housing, which were R-11 for zone 1 and 2. Specifically, EPA used the values in Table 6.7 of the Technical Support Document. While R-11 walls are not considered to be an upgrade relative to the baseline HUD code, other measures are included in these packages to achieve at least 10% savings. 	<ul style="list-style-type: none"> No change
2	<ul style="list-style-type: none"> One respondent recommended increasing the insulation requirements in zone 2 for the Electric Heat Pump and High-Efficiency Furnace Package, noting the insulation levels are identical to zone 1 and that zone 2 will have higher heating loads. They also referenced the insulation levels in the 2016 DOE Proposed Rule for Manufactured Housing, which are more stringent in some assemblies than the draft ENERGY STAR packages. 	<ul style="list-style-type: none"> EPA notes that the insulation levels for both zone 1 and 2 for the Electric Heat Pump and High-Efficiency Furnace Package exceed the HUD code Uo values of 0.116 in zone 1 and 0.096 in zone 2. The insulation levels were selected for zone 2 and extended into zone 1, despite the lower loads in that zone, to ease compliance by allowing the same thermal envelope to be used in both zones. In addition, both packages achieve greater than the targeted 10% savings due to the combination of an improved thermal envelope and upgraded equipment. Therefore, these packages meet EPA's programmatic goals as currently designed. EPA will continue to monitor the development and adoption of new codes, including codes applicable to manufactured homes, and revisit the stringency of program requirements as warranted. 	<ul style="list-style-type: none"> No change
3	<ul style="list-style-type: none"> One respondent noted that the overall coefficient of heat transmission for single section homes in zone 3 for the Electric Heat Pump Package is greater (less stringent) than the current HUD code value. Specifically a value of 0.082 for ENERGY STAR, and 0.079 for HUD. 	<ul style="list-style-type: none"> EPA reviewed the calculations for the Uo values presented for the packages and determined they were inadvertently calculated with a slightly different methodology than the method used to determine the HUD code values. As a result, EPA has aligned the calculations with the HUD methodology and updated the Uo values for all packages. <p>After revising the methodology, the Uo value for single-section homes in zone 3 for the Electric Heat Pump Package was 0.080, still greater than the HUD code value of 0.079. It was not EPA's intent to specify a Uo value worse than the HUD code value and, therefore, has aligned with the code-required value.</p> <p>Many homes using the prescriptive envelope performance levels will meet this revised Uo value due to their architectural features (e.g., a multi-section home, a home</p>	<ul style="list-style-type: none"> EPA has revised the package Uo values to reflect the updated calculations. For the Electric Heat Pump Package, EPA has revised the zone 3 Uo value for single-section homes to align with the HUD Code value of 0.079.

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		with less window area than the geometry of the home used in the 2016 DOE Proposed Rule). However, aligning the Uo value for the package with HUD code value will help ensure that the code requirement is met for every home.	
4	<ul style="list-style-type: none"> Two respondents supported changing the zone 3 High-Efficiency Furnace package by removing the 14 SEER air conditioner and raising the ceiling insulation from R-33 to R-38. 	<ul style="list-style-type: none"> Initial feedback during the comment period included a proposal to change the zone 3 High-Efficiency Furnace package by removing the 14 SEER air conditioner and raising the ceiling insulation from R-33 to R-38. Due to subsequent supportive comments, EPA evaluated this change and determined the updated package would still achieve significant savings and would simplify compliance because field verification of the 14 SEER air conditioner would then not be required. 	<ul style="list-style-type: none"> EPA has revised the High-Efficiency Furnace Package to reflect this change.
5	<ul style="list-style-type: none"> One respondent requested that the Envelope-Only package be revised so that wall insulation in zone 1 would correspond to 2x4 assemblies. The current package specifies R-19 walls, which would require 2x6 construction, and may be a barrier for some manufacturers. 	<ul style="list-style-type: none"> EPA evaluated this change and determined that the package would still achieve at least 10% savings if the zone 1 wall insulation was changed from R-19 to R-13, allowing a 2x4 assembly to be used. While maintaining R-19 would have eased compliance by allowing the same thermal envelope to be used in both zones, the significant reduction in cost of a 2x4 wall will potentially increase adoption of this package in zone 1. 	<ul style="list-style-type: none"> EPA has revised the Envelope-Only Package wall insulation requirements in zone 1 to reflect this change.
Program Consistency			
6	<ul style="list-style-type: none"> One respondent was critical of programs that created differences between site-built or modular single family homes, and manufactured homes. The respondent encouraged consistency between programs, noting that different program requirements could favor one type of housing over another, leading to a competitive disadvantage. 	<ul style="list-style-type: none"> EPA's primary intent with the Version 2 draft of the ENERGY STAR Manufactured Homes program is to simplify the program requirements, so as to drive increased participation in this sector. <p>EPA is maintaining consistency across its residential programs by requiring at least 10% savings above the relevant code for single family, multifamily, and manufactured homes. Even within a sector, EPA develops new program versions to maintain consistent savings relative to the applicable code (e.g., developing National Version 3 and 3.1 for the ENERGY STAR Certified Homes program to reflect implementation of varying IECC codes). EPA will continue to monitor the development and adoption of new codes, including codes applicable to manufactured homes, and revisit the stringency of program requirements as warranted.</p>	<ul style="list-style-type: none"> No change
7	<ul style="list-style-type: none"> One respondent felt that the three packages established a choice between a long-lasting improved thermal envelope or high efficiency 	<ul style="list-style-type: none"> EPA 's primary intent with the Version 2 draft of the ENERGY STAR Manufactured Homes program is to 	<ul style="list-style-type: none"> No change

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	<p>equipment. They pointed to the Electric Heat Pump Package as an example, which includes a heat pump equal to the federal minimum standards. They stated that this does not align with the ENERGY STAR Certified Homes Version 3 / 3.1 Program Requirements, which require a complete thermal enclosure system and an efficient and properly designed and installed HVAC system. They recommended maintaining consistency with other ENERGY STAR program requirements.</p>	<p>simplify the program requirements, so as to drive increased participation in this sector.</p> <p>This is accomplished by providing a streamlined set of three efficiency packages that generate at least 10% savings, yet still offer some flexibility to program partners. EPA notes that an improved thermal envelope is included in all packages, relative to the HUD code, with the one exception of single section homes in zone 3 for the Electric Heat Pump package. This one exception has been addressed in response to a separate comment.</p> <p>EPA acknowledges that there are differences between the Certified Homes and Manufactured Homes programs, largely due to significant variations in the applicable code and the maturity of the ENERGY STAR program within each sector. While the Certified Homes program has advanced through three major versions of its requirements, the Manufactured homes program is being revised for the first time. Even with the differences between programs, EPA is maintaining consistency where possible by requiring at least 10% savings above the relevant code for single family, multifamily, and manufactured homes.</p> <p>Regarding the Electric Heat Pump Package, the 2016 DOE Proposed Rule for Manufactured Housing indicates that 73% of electrically heated manufactured homes use electric resistance heat. Therefore, requiring a heat pump to be used provides significant savings for the large majority of homes, even if the efficiency of the heat pump meets federal minimum standards.</p>	
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Quality Assurance			
8	<ul style="list-style-type: none"> One respondent suggested that Step 6 of the ENERGY STAR Certification Process be revised to require <u>in-plant and / or field</u> evaluations on no less than two percent (2%) of homes <u>under construction or sold</u>. The respondent noted that they regularly conduct plant inspections and work with plants to identify and correct problems, and that addressing issues is most effective in the plant. They also noted that they do visit and inspect homes in the field. 	<ul style="list-style-type: none"> EPA encourages regular in-plant inspections to identify and correct issues before the homes are installed. However, EPA believes field inspections provide valuable quality assurance and should be conducted as a part of a minimum program requirement to ensure proper quality assurance. EPA maintains that field inspections shall be conducted on at least 2% of home sold and installed on a homeowner's site. 	<ul style="list-style-type: none"> No change

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		EPA will continue to monitor the adoption of the envelope-only package and consider ways in which in-plant inspections could be further encouraged.	
9	<ul style="list-style-type: none"> One respondent commented that they inspect over 2% of homes, but that an inspection rate as low as 2% is acceptable for a well-operating factory and home retailer. 	<ul style="list-style-type: none"> EPA acknowledges the support of the minimum 2% inspection requirement, and notes that this is a minimum value so a Quality Assurance Provider (QAP) may choose to inspect a higher percentage of homes. 	<ul style="list-style-type: none"> No change
Support			
10	<ul style="list-style-type: none"> One respondent endorsed the Electric Heat Pump Package and said that they have seen a growth in the number of ENERGY STAR Certified Manufactured Homes as a result of the availability of this package on a pilot basis. 	<ul style="list-style-type: none"> EPA appreciates the support for the Electric Heat Pump Package. 	<ul style="list-style-type: none"> No change
Terminology			
11	<ul style="list-style-type: none"> One respondent recommended changing references to HUD "Climate Zones" or "CZ" to "Thermal Zones" or "TZ" for consistency with nomenclature used for HUD programs. 	<ul style="list-style-type: none"> EPA agrees that consistent terminology should be used. 	<ul style="list-style-type: none"> EPA has revised instances of "Climate Zone" to "Thermal Zone" and also revised associated abbreviations.