



May 6, 2019

U.S. EPA ENERGY STAR Program

**Subject: Comments from the North American Insulation Manufacturers Association on Version 2 draft of the ENERGY STAR Manufactured Homes program.**

These comments are submitted by the North American Insulation Manufacturers Association (NAIMA) regarding draft changes to the ENERGY STAR requirements for manufactured housing. NAIMA is the association for North American manufacturers of fiber glass, rock wool, and slag wool insulation products. Our role is to promote energy efficiency and environmental preservation through the use of fiber glass, rock wool, and slag wool insulation, and to encourage the safe production and use of these materials.

NAIMA strongly supports the mission ENERGY STAR and the voluntary use of the ENERGY STAR Certified Homes program requirements. NAIMA supports the EPA's update to the ENERGY STAR program requirements for manufactured housing and NAIMA makes the following additional recommendations:

1. Maintain consistency with structure other ENERGY STAR program requirements.
2. Include minimum recommended R-values.
3. Improve efficiency requirements for HUD Zone 2.
4. Correct the R-values and Uo for ENERGY STAR Electric Heat Pump option in HUD Zone 3 due to a possible error.
5. Adopt adjustment to "High-efficiency Furnace" option.

**1.) Maintain consistency with other ENERGY STAR program requirements.**

The proposed program requirements set up a choice that appears to be between either a sound thermal envelope or high-efficiency HVAC equipment. This proposed choice deviates from the key value proposition of the ENERGY STAR program since the inception of Version 3, a sound thermal envelope paired with an efficient, right-sized HVAC system. These requirements send the message that the longevity of the thermal envelope can be traded-off against HVAC equipment efficiency. This is particularly evident for the Electric Heat Pump option that includes equipment efficiency levels that are equal to federal minimum standards.

**2.) Minimum recommended R-values**

While the overall Uo values are an improvement over the HUD code, the inclusion of R-11 wall insulation values within the ENERGY STAR Reference Design seems out of place. NAIMA and DOE recommendations start at a minimum of R-13 for wall insulation and this has been the lowest referenced wall R-value in the model code since at least the 2006 IECC. NAIMA recommends removing references to R-11 wall insulation, replacing them with R-13, and recalculating the marginal difference in the respective Uo values for each instance.

Additionally, NAIMA recommends that R-13 be included the mandatory minimum R-value for wall insulation even when using Uo compliance. This would ensure a more consistent thermal envelope across all building components using readily available products and would not lead to a change in wall construction.

### 3.) Improve efficiency requirements for HUD Zone 2.

In the draft ENERGY STAR program requirements for manufactured housing, there is currently no differentiation in efficiency requirements between HUD Zone 1 and HUD Zone 2. However, the HUD code includes improvements to the thermal envelope requirements between Zone 1 and Zone 2. As there are multiple climate zones, HUD Zone 2 consists of climate locations that see additional heating loads and higher energy use compared to HUD Zone 1 and therefore are likely to benefit from cost-effective improved thermal envelope measures.

Acknowledging this difference, the DOE rulemaking process to update the efficiency requirements for manufactured housing included R-values and Uo values that were set to different levels between HUD Zone 1 and 2.

*Figure 1 – HUD Zone 2: DOE Proposed Rulemaking vs Proposed ENERGY STAR R-values*

Location	DOE Rulemaking	ENERGY STAR HP/GF
Wall	R-21	R-11
Ceiling	R-30	R-33
Floor	R-13	R-22
Window	U-0.35	U-0.35
Uo	0.070 / 0.068	0.082 / 0.076

NAIMA recommends improving thermal envelope values in HUD Zone 2 for the Electric Heat Pump and High-efficiency Gas Furnace options to acknowledge this climate difference or providing cost & savings information to justify maintaining the currently proposed efficiency levels.

### 4.) Correct R-values and Uo for Heat Pump Option HUD Zone 3.

The Uo listed for the Electric Heat Pump option in HUD Zone 3 (0.082) exceeds the maximum coefficient of heat transmission permitted in the current HUD code (0.079).

NAIMA recommends that, at a minimum, these R-values and Uo should be revised to mirror the efficiency levels contained in the High-efficiency Gas Furnace option so that the Uo is below the maximum Uo permitted under the current HUD code.

**5.) Adjustment to “High-efficiency Furnace” package.**

It was noted on EPA’s website where the draft ENERGY STAR program requirements for manufactured homes was posted that EPA was soliciting feedback on an adjustment to the “High-efficiency Furnace” package that consisted of removing the 14 SEER requirement and moving from R-33 to R-38 attic insulation. NAIMA is supportive of this adjustment as it is in line with previous comments contained in this document.