



September 2, 2021

Mr. Doug Anderson
Program Manager, ENERGY STAR® for Windows, Doors, and Skylights
U.S. Environmental Protection Agency (EPA)

Re: ENERGY STAR Residential Windows, Doors and Skylights Version 7.0 Draft 1 Specification

Pella Corporation appreciates this opportunity to review and comment on the Version 7.0 Draft 1 Specification and offers the following for consideration.

EPA's Analysis Supporting Draft 1:

Pella has significant concerns over the validity of the underlying analysis on which EPA is basing Draft 1. In particular, it has come to our attention that the version of EnergyPlus™ used in the analysis (v8.9) contained an error whereby some glazing options were assigned a negative absorptance at certain incidence angles. We have heard from other industry colleagues that this error, which was corrected in v9.4, may have resulted in under estimating expected cooling energy usage by as much as 12%.

Questions have also been raised about how heating, cooling and fan energy values have been combined, and about apparent inconsistencies between site vs. source energy.

Pella is concerned that if these issues and questions are not adequately addressed, the credibility and reputation of the ENERGY STAR brand may be jeopardized. Pella strongly encourages EPA to review their analysis and clearly address these issues.

Proposed $U \leq 0.22$ in the Northern Zone:

Contingent on a review of EPA's analysis as mentioned above, Pella supports this proposal. We believe it will create a level playing field across the industry by requiring virtually all products to utilize triple-pane glazing in order to qualify.

We also believe that making a change of this magnitude will help avoid another criteria revision in the near future. As I'm sure EPA can appreciate, any criteria revision, regardless of the magnitude, represents a disruption to all program partners. Pella prefers larger, less frequent revisions rather than smaller, more frequent revisions.

Proposed SHGC \geq 0.17 in the Northern Zone:

Pella contends that EPA has not adequately justified this proposal. We understand that EPA's primary rationale is to avoid glazing packages that may be perceived as too dark by typical home owners in northern regions. Table 4 of the Criteria Analysis Report (CAR) indicates that products with SHGCs below 0.17 will have Visible Transmittance (VT) ratings below 40%. While we don't dispute that finding, we do question whether EPA has conducted adequate research to determine if VTs below 40% will or won't be objectionable. Based on the information provide to-date, the 40% limit appears to simply be an opinion and not supported by any significant data or research.

Figure 26 of the CAR suggests that energy savings in the Northern Zone diminish as SHGCs decrease. However, the analysis apparently did not consider SHGCs less than 0.17. It is therefore unknown if that trend does or doesn't continue at lower SHGCs.

The proposal to add a minimum SHGC to the Northern Zone represents a new element to the program that will add burden and complexity for all participants. Pella encourages EPA to leave the SHGC requirement for the Northern Zone as "Any" as specified in V6.0, or research this further to determine if the additional burden and complexity is truly justified. Homeowner surveys could help better understand what VT levels are or aren't considered acceptable, and further energy savings analysis with SHGCs below 0.17 seems warranted.

Proposed Equivalent Energy Performance Paths in the Northern Zone:

Pella is concerned that EPA has not fully considered all aspects of this proposal, and we encourage EPA to do so. In our experience, the use of high solar gain products in cold climates often results in issues with occupant discomfort, condensation, and higher than expected energy bills. Promoting high solar gain products in the Northern Zone may mislead homeowners by incorrectly implying that simply installing such products results in an effective passive solar design. Typical homeowners do not understand that the fenestration is only one of many factors to consider when designing a passive solar home. The Northern Zone contains regions with high cooling demand in summer months. By promoting high solar gain products in homes with inadequate passive design, cooling systems may be undersized and living spaces may become uncomfortably warm.

The specific levels for the proposed Equivalent Energy Performance paths will allow the use of dual-pane glazing in some products as long as a room-side low-E is incorporated. The concern over this scenario is that manufacturers may promote lower cost alternatives that are ENERGY STAR certified, but risk issues with room-side condensation. Pella recommends that if equivalency options are maintained, they be further limited to maintain a level playing field.

Proposed SHGC \leq 0.23 in the South-Central and Southern Zones:

Pella is concerned that this proposal may be very challenging for fixed windows with thin, contemporary sight-lines. Such products are quite popular in southern regions. Since EPA's analysis is based on double-hung products, it may not have adequately accounted for fixed windows. We understand that California's energy code, Title 24, specifies SHGC \leq 0.23 for some climate zones. However, this requirement applies only to the code's prescriptive path. Title 24 also offers performance path and trade-off options that allow for some products with a higher SHGC to be included in the whole-house package and still be code compliant. EPA's proposal does not include any similar options.

Pella encourages EPA to fully account for how fixed windows are affected by this proposal, and to consider maintaining the current V6.0 requirement of SHGC \leq 0.25.

Proposed Northern Zone "Islands" in California and North Carolina:

Pella understands and supports EPA's objective of aligning the ENERGY STAR zones with ICC's and ASHRAE's climate zones. However, we question the practicality of the Northern Zone "islands" in California and North Carolina. During the webinar on July 27th, it was indicated that EPA also shares this concern and is considering moving these few counties

back to the North-Central zone. Pella encourages EPA to do so. While technically accurate, these “islands” will likely create significant challenges for product distribution and logistics that would over-shadow any energy savings benefits.

Applying the Windows Criteria to Sliding Doors:

Pella recommends against applying the windows criteria to sliding doors. V6.0 established a clear distinction between windows and doors, and this seems to resonate well with consumers. Separating sliding doors and swinging doors will likely be confusing and may even be a source of frustration. It will likely be difficult to explain to a homeowner that a swinging patio door with certain performance ratings can qualify for a tax credit or utility rebate, but a sliding patio door with the same (or maybe even better) performance ratings does not.

Pella understands that the Most Efficient Program applies the same criteria to windows and sliding doors. However, the latest Ducker report from November, 2020 shows less than a 2% market share for Most Efficient products. Considering this minimal market share, that does not appear to be adequate justification for doing the same with the base ENERGY STAR program.

Pella recommends maintaining the distinction between windows and doors that was established with V6.0.

Increased Marketing and Promotion of ENERGY STAR:

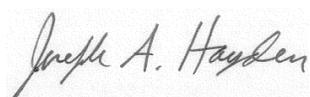
Pella understands that EPA plans for increased marketing and promotion efforts going forward. As part of that effort, we encourage EPA to also re-emphasize/educate that ENERGY STAR is intended to be an above-code, voluntary program, and to encourage local code jurisdictions to not adopt ENERGY STAR as their local energy code. We receive occasional, anecdotal feedback that some code jurisdictions have considered doing just that. We understand that EPA has no authority over any code jurisdictions. However, some reassertion of that message from EPA seems appropriate.

V7.0 Effective Date:

Pella understands that EPA plans for the effective date to be no sooner than 1/1/2023. Pella appreciates EPA’s willingness to consider an extended implementation schedule and encourages EPA to set an effective date of 1/1/2024. In addition to providing time to complete product redesigns, update labeling systems, update literature, train personnel, etc., it will also provide time for supply chains to fully recover from disruptions related to the COVID-19 pandemic. This will be particularly important if the Delta variant further hinders recovery efforts.

Once again, Pella thanks EPA for the opportunity to comment on Draft 1. Please don’t hesitate to contact me if you have questions or would like to discuss anything further.

Sincerely,



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