



August 21, 2023

Subject: ENERGY STAR Proposed 2024 Most Efficient Recognition Criteria for Residential Windows and Sliding Glass Doors

Dear ENERGY STAR Team:

The Window and Door Manufacturers Association (WDMA) appreciates the opportunity to comment on the proposed ENERGY STAR Most Efficient 2024 Criteria for Residential Windows and Sliding Glass Doors. WDMA is a national trade association representing the nation's leading producers of windows, doors, and skylights for domestic and export markets. Our members sell to distributors, dealers, builders, remodelers, homeowners, architects, contractors, as well as other specifiers in the residential, commercial, and institutional construction markets. WDMA members manufacture high-quality products designed and constructed to performance-based standards that provide improved safety, comfort, and energy efficiency, in both new construction and renovation of homes, residential buildings, and other commercial buildings.

WDMA reviewed the EPA's July 17<sup>th</sup> proposed 2024 Most Efficient Criteria and believes that nominally raising the U-factor in the South is a partial step in the right direction. The 2023 criteria have a 0.20 U-factor throughout the country; this value may be a slight overreach in the North but makes little sense in the South where the market share of homes with windows having this level of performance is believed to be very close to zero- even with the modest incentives through the Inflation Reduction Act, there is little expectation that the market share of Most Efficient compliant windows and sliding glass doors will noticeably change in the South. Even the new Passive House US window certification criteria only require a U-factor of 0.29 in Climate Zones 1, 2, 3B, and 3C (<https://www.phius.org/inside-look-phius-certified-windows-program-update-part-i>).

We encourage EPA to analyze the number of years it would take to save just the amount of additional embodied energy needed to manufacture a 0.20 U-factor triple pane (3mm center glass) window vs. a double-pane window with a 0.28 U-factor. Based on some simple calculations using EPA ENERGY STAR v7.0 calculations and an assumption of 2,160 MJ/MT of embodied energy in flat glass, we came up with a 25-year payback in Miami, 7 years in Tampa and it will never pay back in Honolulu. Obviously, the paybacks are longer if the triple-pane spacer materials and glazing frame contain more embodied energy. This is especially concerning when considering efforts to electrify homes and the expectation that electrical generation will become significantly cleaner in the near future thereby further reducing the benefits of the lower U-factor over the life of the window or sliding glass door.

EPA also recommended removing the reference to a North American Fenestration Standard (NAFS) Performance Grade rating of PG15 requirement for Most Efficient products. WDMA supports the current Performance Grade requirement because it is an established basis for determining window integrity through a series of rigorous tests to determine a window or door's design pressure, air-leakage resistance, water penetration resistance, operating force, safety, and durability. This requirement is even more critical for the higher-performing, more costly windows. Removing this requirement would weaken the value of the Most Efficient criteria.

EPA has stated that air-water-structural requirements are already regulated by building codes and therefore the PG15 requirement is unnecessary in the ME program. While that may be true in theory, the reality is that code adoption and enforcement throughout the USA is inconsistent, and virtually non-existent in replacement applications. Further, when consumers purchase an ENERGY STAR product, they expect quality. Maintaining the PG 15 minimum requirement will continue to help achieve that. Therefore, WDMA urges EPA to maintain the PG 15 performance criteria and consider adding it as a requirement in the Windows, Doors, and Skylight Program.

WDMA recommends that EPA make the following changes to the proposed 2024 Most Efficient Criteria:

<b>Climate Zone</b>	<b>U-factor</b>	<b>SHGC</b>
Northern	$\leq 0.20$	$\geq \underline{0.20}$ <u>NR</u>
North-Central	$\leq 0.20$	$\leq 0.40$
South-Central	$\leq \underline{0.25}$ <del>0.20</del>	$\leq 0.23$
Southern	$\leq \underline{0.25}$ <del>0.21</del> $= \underline{0.22}$	$\leq 0.23$ $\leq \underline{0.21}$

The U-factor of 0.25 or lower in South-Central and Southern Climate Zones will allow some of the most energy-efficient dual-pane products to qualify without requiring triple-pane glazing. We also recommend removing the Northern Zone SHGC requirement, there are many triple-pane sliding glass doors that have difficulty meeting the 0.20 requirement, this is a problem related to the opaque window frame area combined with inherently lower SHGC found in triple-paned glazing. And finally, WDMA recommends reinstating the NAFS Performance Grade Rating of PG15.

Again, we appreciate this opportunity to provide comments on the proposed 2024 ENERGY STAR Most Efficient Criteria for Residential Windows and Sliding Glass Doors. Please let us know if you have any questions regarding our comments.

Sincerely,



Craig Drumheller  
Vice President of Technical Activities  
Window & Door Manufacturers Association