



September 3, 2021

Doug Anderson - Program Manager
ENERGY STAR for Windows, Doors, and Skylights
U.S. Environmental Protection Agency
Sent via email: windows@energystar.gov

Dear Doug,

Marvin appreciates the opportunity to review and submit comments on the *ENERGY STAR Product Specification – Residential Windows, Doors and Skylights – Eligibility Criteria, Draft 1, Version 7.0* issued on July 7, 2021.

Marvin offers these comments on key topics we feel are important to our continued ENERGY STAR partnership. We also support many of the comments that have been raised by both WDMA and FGIA on behalf of industry members.

Here is a summary of our concerns:

1. EnergyPlus whole building energy simulations used to support the proposed Version 7.0 may have up to a 12% error overstating energy consumption and this should be reviewed and the whole building energy simulations should be re-run.
2. Using low-cost vinyl products meeting a 0.35 U-factor are not a reasonable demonstration of payback for support of moving forward with the next version of ENERGY STAR Version 7.
3. Marvin recommends breaking up the proposed Version 7 into two separate programs, Version 7 in 2024, followed by Version 8 in 2029 to provide a quicker payback for consumers.
4. Marvin does not support moving Sliding Glass Doors into the Window Category.
5. Either eliminate the SHGC trade-offs for the Northern Zone or significantly reduce the amount of SGHC required for the equivalent energy performance compliance path.
6. Market penetration and consumer adoption of the proposed Version 7 program would drop significantly, especially in the Northern and North-Central Climate Zones.
7. There is no need for a proposed minimum SHGC for the Northern Zone and proposed maximum for the South Central and Southern Zones.
8. We do not support lowering the SHGC to 0.23 in the South-Central and Southern Zones.

1. EnergyPlus – Corrections Made from 8.9 vs 9.4 – Up to a 12% Error.

- Marvin has been informed that there was an error using EnergyPlus 8.9 which was caught and corrected in Energy Plus 9.4. During the ENERGY STAR Version 7 webinar this question was asked, and we feel that EPA dismissed concerns that this may be only a 2% corrected error. However, Marvin understands that there may be a 2% error on the heating side but up to a 12% error on the cooling side. We feel that this should be reviewed again by EPA and if it requires re-running the whole building energy simulations to get this data corrected – then we want the most accurate data available to support changes to the ENERGY STAR program for windows, doors and skylights. If the EnergyPlus 9.4 or newer versions are used to re-run building models – the industry should be given additional time to review the data.

2. Using low-cost vinyl products meeting a 0.35 U-factor are not a reasonable demonstration of payback for support of moving forward with the next version of ENERGY STAR Version 7.

- All the payback models used in the analysis to demonstrate that there is a reasonable return on the consumer’s investment are based on low-cost vinyl products. Lower cost vinyl products often come with lower overall durability and quality including lacking warranties that pass from the original owner to a new owner. Often this takes place in less than 10 years so any payback on energy costs needs to be within this time frame. Based on an analysis using Version 6 as the baseline and average product cost data, the payback would be well beyond 10 years. A better approach is to use average costs of the entire product data set, eliminating any extreme outliers (low or high). This along with using a direct comparison of the cost savings and payback between ENERGY STAR Version 6 and Version 7 will be a more accurate illustration of the energy savings and payback for the proposed ENERGY STAR program.

3. Marvin recommends breaking up the proposed Version 7 into two separate programs, one in 2024 and a second (Version 8) in 2029 to provide a quicker payback for consumers.

- There will be a limited return on investment (payback) for consumers if the proposed program requires 0.22 U-factor/requiring tri-panes for 2/3 of the United States. The 2024 I-Codes (IECC - energy) are already in progress. Since the I-Codes change every 3 years, we expect that ENERGY STAR will base future proposals on the changes that are happening in the Code Development Process based on 2024, 2027 and 2030 to remain relevant. This strategy would facilitate the ENERGY STAR program staying as an ‘above code’ program when determining where the IECC goes in 2024, 2027 and 2030.

4. Marvin does not support moving Sliding Glass Doors into the Window Category.

- By allowing greater than 1/2-lite swinging doors to compete against sliding glass doors at a higher U-factor (≤ 0.28) vs. ($\leq 0.22 - 0.26$) and (≤ 0.24) in the Northern and North Central Zones and with the opposite SHGC (≤ 0.40) vs. ($\geq 0.17, \geq 0.35, \geq 0.40, \geq 0.45, \geq 0.50$) in the Northern Zone, creates an unfair advantage between products that compete against each other in the marketplace. This will also confuse consumers considering the purchase of a sliding glass door or swinging

door, and will be unsatisfactory for consumers looking for similar, whole house, fenestration glass packages. A swinging door has an advantage thermally because it can more easily accommodate a tri-pane configuration within a 1 ¾" thick panel by using glazing stops "proud" of the surface of the door panel. Swinging doors swing open either to the interior or exterior and having the glazing stops "proud" of the panel has no bearing on the operation of the door. Sliding doors have greater constraints because the two - 1 ¾" thick panels must slide by each other and having a tri-pane installed with glazing stops "proud" of the panel would impede the operation of the door.

5. Either eliminate the SHGC trade-offs for the Northern Zone or significantly reduce the amount of SHGC required for the equivalent energy performance compliance path.

- Following point 3, splitting up Version 7 into two separate programs, one implemented in 2024 and a second (Version 8) implemented in 2029 would eliminate the need for any SHGC trade-offs as the U-factor can be achieved reasonably and with a quicker payback for consumers. The current trade-offs are not reasonable and would find few consumers choosing this path. As an example, many consumers prefer the esthetics of "divided-lites" on their sash that requires wood, aluminum, vinyl, or composite decorative bars affixed to the interior and/or exterior glass. The divided lites feature, desired by many consumers, will eliminate using the SHGC trade-offs at the current high levels as proposed because this feature lowers SHGC. If SHGC trade-offs are necessary, then they would need to be lowered considerably to eliminate overheating (comfort) issues and accepted that they are not a "fully" equivalent energy performance path.

6. Market penetration and consumer adoption of the proposed Version 7 program would drop significantly, especially in the Northern and North-Central Climate Zones.

- We feel the market penetration today in the Northern Climate Zone is overstated because manufacturers cannot with certainty predict if a product sold meets the requirements of a specific climate zone, often due to the consumer's glazing package preference. The proposed program is a greater stretch and will require a larger price tag, with many consumers not seeing the balance of benefit versus cost. This will certainly reduce the market acceptance and degrade the expected program energy savings goals.

7. There is no need for a proposed minimum SHGC for the Northern Zone and proposed maximum for the South Central and Southern Zones.

- These additional regulatory requirements only add complexity with no real benefit to the consumer and certainly have nothing to do with energy savings. Canada recognized that once U-factors were lowered, thus generating reasonable energy savings, there was no need for a minimum Energy Rating (ER) requirement.

8. We do not support lowering the SHGC to 0.23 in the South-Central and Southern Zones.

- This lower SHGC level, limits product options for reasons other than energy savings (i.e., thin profiles that consumers seek, etc.) and while 0.23 SHGC does exist in certain state codes – those states allow for prescriptive weighted averaging while ENERGY STAR is prescriptive without any averaging or performance modeling and would eliminate labeling certain energy efficient (lower U-factor) products within a complete home package for the wrong reasons.

Because the windows, doors and skylight industries are very complex – having to meet requirements in different zones with many different product options (glass makeups – IG, Triple IG, coatings, gas fills, etc.), and consumers having the ability to seek out different materials (aluminum, wood, wood/clad, vinyl, fiberglass and composite materials) we have a good understanding that we must continue to work together and provide products that consumers can use from the ENERGY STAR program. The window, door and skylight industry are unique to its complexity, unlike many of the other products that have ENERGY STAR programs but can sell into any market without worry of specific climate zone uniqueness's and solutions.

Again, thank you to ENERGY STAR for allowing our industry to comment on *ENERGY STAR Product Specification – Residential Windows, Doors and Skylights – Eligibility Criteria, Draft 1, Version 7.0* issued on July 7, 2021.

Marvin continues to support the ENERGY STAR Programs ability to identify and promote cost effective, durable products that reduce greenhouse gas emissions by meeting consensus driven energy conservation standards.

Respectfully submitted,

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