Consortium for Energy Efficiency

Ferncroft Corporate Center, 35 Village Road
Middleton, Massachusetts 01949
617.589.3949
www.cee1.org

August 27, 2021

Mr. Douglas Anderson
ENERGY STAR® Program
US Environmental Protection Agency
Washington, DC 20460

Dear Mr. Anderson:

The Consortium for Energy Efficiency (CEE) respectfully submits the following comments in response to the ENERGY STAR® Version 7.0 Window, Door, and Skylight (WDS) Draft 1, released by the Environmental Protection Agency (EPA) on July 7, 2021.

CEE is the binational organization of energy efficiency program administrators and a staunch supporter of the ENERGY STAR® Program. CEE members are responsible for ratepayer-funded efficiency programs in 38 US states, the District of Columbia, and four Canadian provinces. In 2018, CEE members directed over 68 percent of the $8.9 billion in energy efficiency and demand response program expenditures in the two countries. These comments are offered in support of the local activities CEE members carry out to actively leverage the ENERGY STAR brand. CEE consensus comments are offered in the spirit of strengthening ENERGY STAR, so it may continue to serve as the national marketing platform for energy efficiency.

CEE highly values the role ENERGY STAR plays in differentiating energy efficient products and services that the CEE membership supports locally throughout the US and Canada. We appreciate the opportunity to provide these comments.

CEE Supports EPA's Direction and Proposed Levels of the Window, Door, and Skylight Label to Advance High Performing Products

As noted in CEE's comments in response to the 2019 Discussion Guide, we agree with EPA's decision to revisit this ENERGY STAR specification to ensure that the label for windows, doors, and skylights can push efficiency levels in the market while recognizing cost effectiveness and technological feasibility. This product category remains an important opportunity for energy savings, and is necessary to achieving a tight, well insulated home that can withstand demand flexibility. The overall tightness of a home's envelope is the central backbone for ensuring whole house performance, and fenestration is critical to these values. As of 2020 there were 27 CEE members promoting efficient windows as a standalone offering, with additional promotion through new construction programs and performance-based whole home offerings.

Many state and local performance baselines for fenestration products are rising, which reduces the delta of savings for Version 6.0 ENERGY STAR qualified windows, doors, and skylights in these regions. Some examples of those increased levels include the 2018 and 2021 International Energy Conservation Code® (IECC), Title 24 in California, standards in some Northern climate states or jurisdictions, and the Pan-Canadian Framework on Clean Growth and Climate Change. Having a meaningful differentiation of products in the market will therefore continue to be an important tool towards achieving insulated and high performing building shells.

EPA's Analysis Supports the Proposed Performance Levels as Cost-Effective Energy Savings

Upon review of EPA's proposal by the CEE Windows Committee, we support this revision, which is evidence of positive market change and consistent with our shared objective to continuously push the market to develop high performing window, door, and skylight products while recognizing performance gains.

The U-factor and SHGC levels put forth in the Draft 1 specification, as demonstrated through the associated data packages presented in the July 7 materials, deliver significant energy efficiency savings above baseline while remaining cost effective for manufacturer production. Savings per year above market baseline of between $20.14 and $113.35 is a sizable annual impact, particularly given EPA estimates the average number of windows in

a home to be 22. And while there are many considerations for how to potentially evaluate payback for this product, the estimate minimum 5.5 years and maximum 11.3 year payback attributed to the proposed Draft 1 performance levels reflects a reasonable timeframe for consumers, given the cost and lifespan of this particular product category. As noted by EPA, the estimated lifetime of a window is 15-30 years, warrantees are often 20 or more years, and average homeowner occupancy duration is 13 years). Further, the 5.5–11.3 year payback uses a conservative baseline of a 0.35 U-factor (0.30 in Northern climates). As of June 2021, only 9 states formally adopted these 2018 and 2021 IECC levels as building code.[1] All other states utilize older versions of the IECC building code, which mean either a baseline of 0.40 (0.32 in Northern climates) for those adopting the 2012 or 2015 IECC levels, or 0.60/0.50 (0.35 in Northern climates) for those adopting the 2009 or older IECC levels.

In terms of incremental cost to the homeowner, EPA's research found that window prices vary widely, from about $150 to $750, and thermal performance *was not the primary driver* of consumer prices. While on average windows are more expensive at lower U-factors (the incremental cost of going from a baseline of 0.35 to the proposed 0.22 is about $50, from $250 to $300), primary factors that contribute to the final consumer cost are quality of materials, hardware choices, company mark-up, and local market dynamics.

We support the technology neutral pathway that EPA continues to espouse through this specification, as it enables market innovation and advancement without prescribing component requirements such as frame options, glazing configurations, coating options, spacers, and gas fills. This approach helps facilitate innovation in a space where there remains technological potential beyond the current proposed levels, as indicated by the fact that currently available products are able to achieve U-factor levels of 0.14, 30% more efficient than the most stringent Draft 1 level of 0.22. While the highest performing models on the market today are not cost effective, they do demonstrate technical ability to reach even greater levels with materials and solutions already available. Given the significance of windows relative to the performance of a building's envelope and the importance of a highly insulated shell as the foundation of an integrated home that can address a broad range of evolving integrated demand side management objectives, the proposed Version 7.0 levels set a very important marker in the sand for advancing market transformation of advanced fenestration over the coming years and decades. With Draft 1 of Version 7.0 representing a significant increase in efficiency savings of about 20% over Version 6.0, it is encouraging that over 50% of product lines already available in the market today can

[1] US Department of Energy: *Status of State Energy Code Adoption – Residential.* Updated June 30, 2021. https://www.energycodes.gov/status/residential

meet these levels. We appreciate EPA's commitment to push performance in this revision and consider the identified levels appropriately stringent for providing meaningful differentiation.

Continuing to Label Doors and Skylights is Consistent with CEE Member Programs

Doors and skylights contribute to the overall efficiency of a home's envelope, which as stated above is paramount to delivering optimal performance of the entire house. While these products represent a much smaller market share of fenestration sold and installed across the United States (the average number of doors in a home is 2, compared to 22 windows; many homes do not have any skylights), as well as a much smaller fraction wall surface percentage-wise, they do impact the shell's tightness. The collective fenestration of a conventional home can account for up to 30% of total heat loss,[2] making any installed window, door, or skylight product a potentially significant contribution to total energy use. For this reason, the ENERGY STAR label continues to serve as an effective means to differentiate efficient models compared to baseline models.

This is reinforced by CEE's Windows Program Summary data, which identifies that, as of 2020, 11 members were promoting doors through standalone offerings, and 4 members were promoting skylights through standalone offerings. CEE appreciates the research that EPA conducted since the Discussion Guide to determine that there are indeed cost-effective energy savings for both doors and skylights ($2.55-$7.54 per year for doors, skylights vary but often offer comparable savings to windows), and that these products offer significant energy savings on a national level. We concur with the conclusion that, while doors and skylights represent a much smaller amount of surface area (about 42ft^2 for doors, skylights vary) of a house compared to windows, and therefore have less overall impact on household energy use, they demonstrate energy and monetary savings in all climate zones. In addition, ENERGY STAR label serves as an effective tool for differentiation for those looking for guidance in selecting efficient models in the market. CEE is pleased to see that EPA is proposing to continue inclusion of doors and skylights within the Version 7.0 version of this specification.

[2] Construction Canada*: Windows Versus Walls: Debunking the Energy Myth.* May 2012. https://www.constructioncanada.net/windows-versus-walls-debunking-the-energy-myth/

CEE Applauds EPA's Comprehensive Research and Analysis in Developing the Draft 1 Proposal

CEE thanks EPA for presenting in-depth and robust materials for consideration in this specification revision process. We note the highly detailed, thorough, and transparent procedures that were executed throughout the past several years during early stakeholder meetings in 2014-2016, the Discussion Guide in 2019, and now this package of Draft 1 Specification and Data Packages.

We recognize that windows, doors, and skylights are a particularly unique product category with challenging cost-effectiveness considerations. We appreciate EPA's effort to work with stakeholders and carefully deliberate over decisions without rushing an outcome for the sake of expediency. CEE finds the contents associated with the July 7 Draft 1 release to represent a comprehensive analysis and evaluation of the conditions necessary to evaluate an appropriate course for the ENERGY STAR label relative to this category. The publications and investor engagement to date on the Version 7.0 specification revision process represent a model for ENERGY STAR processes, and we thank you for the thoroughness. CEE encourages EPA to apply similar assiduous methods and communications to all other product areas.

CEE would once again like to thank the EPA for the opportunity to comment on the ENERGY STAR Version 7.0 Window, Door, and Skylight Draft 1 Specification. Please contact CEE Principal Program Manager Alice Rosenberg at 617-337-9287 with any questions about these comments.

Sincerely,

Ed Wisniewski
Executive Director