



ALUMINUM EXTRUDERS WORKING TOGETHER TO IMPROVE PRODUCTS, MARKETS, AND THE INDUSTRY

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Marc LaFrance
Richard Karney
Office of Building Technologies
Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585

RE: AEC comments on LBNL analysis of performance-based standard for ENERGYSTAR windows

Dear Messrs. LaFrance & Karney:

The Aluminum Extruders Council (AEC) appreciates the opportunity to comment on the Lawrence Berkeley National Laboratory (LBNL) "Analysis Results for Performance Based Ratings for the ENERGYSTAR Windows Program". At the conclusion of the Department of Energy's (DOE) 30 September 2003 workshop to discuss possible development of a performance-based rating system for ENERGYSTAR windows, LBNL was directed to develop a regression equation (and corresponding table) for each of the four zones in the ENERGYSTAR windows program. We are pleased that LBNL has completed this task and shown that there are viable performance-based options that can save as much (or more) energy as the current design-based standards.

We are very concerned, however, that the LBNL analysis went beyond the directives discussed at the workshop and those outlined in both the 1 August 2003 paper, "Performance Based Ratings for the ENERGYSTAR Windows Program: A discussion of issues and future possibilities", and the 30 October 2003 memo to "Those interested in the Development of a Performance Based Rating System for ENERGYSTAR Windows", and decided that a performance-based option must result in equal or greater energy savings for each specific city analyzed within a zone. The regression equation developed for each of the four climate zones yields results on a city-specific basis; AEC believes strongly that those results MUST be weighted by population so that energy savings on a zone level can be obtained. The qualifying test for performance based-standards should be whether they provide overall energy savings for the zone equal to or better than the current design-based ENERGYSTAR standards.

The method of analysis LBNL pursued (U-factor and SHGC options for each city and if an option doesn't work for each city in the climate zone, then no performance-based ENERGYSTAR window option exists) is not a fair comparison between design and performance-based standards within the ENERGYSTAR program. ENERGYSTAR design-based standards were not developed in this manner. Under the current design-based system, ENERGYSTAR windows installed in different cities within a zone do not save the same amount of energy. The ENERGYSTAR windows program was not intended to provide an "optimum" window choice for a given city, but rather the standards chosen balance a number of climate factors within a zone to provide zone-level energy savings. The design-based options considered by DOE in the latest revision to the ENERGYSTAR windows standards were evaluated against one another by calculating population-weighted energy savings for a zone. DOE did not compare among the options on a city-specific basis, but rather on energy savings within a zone.

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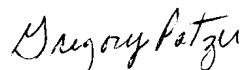
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The LBNL analysis does highlight that the current four zones chosen for ENERGYSTAR were not chosen to aggregate cities with similar needs with respect to window selection. For example, the individual city analysis for the south-central zone shows that with slightly increased values for a U-factor, the corresponding SHGC to equal ENERGYSTAR performance sometimes increases and sometimes decreases from the design-based standard. This shows that the existing ENERGYSTAR standard for a given city is not the "best" choice, but is the result of aggregating energy savings across a zone on a population-weighted basis. Any performance-based approach should be adopted using a similar methodology.

The AEC agrees that there remain some technical issues limiting the application of performance-based standards at this time. While the population-weighted regression results for the north-central zone indicates that trade-offs in the U-factor would need to be balanced with SHGC that may not be achievable, the framework should remain in place as future technologies may allow these results to occur. In the northern zone, the rule of meeting existing code requirements of U-factor = 0.35 (with no specified SHGC) poses what appears to be an artificial constraint on developing performance-based standards there. The AEC also disagrees with the default SHGC of 0.4 chosen for the analysis; we believe a SHGC of 0.30 is more representative of current ENERGYSTAR windows sold in that zone and it should have been used to develop Table 11. Further, we find this methodology defensible for exceeding a U-factor of 0.35 as the energy saved through the use of such a window will meet or exceed energy saved by windows currently labeled ENERGYSTAR in the northern zone. The point of the ENERGYSTAR program is to save energy, not to comply with an arbitrary number. However, if the decision is that U-factor = 0.35 can never be exceeded, the framework should remain in place to spur technological innovations that will allow tradeoffs between SHGC and U factor.

In conclusion, the LBNL analysis has proved that there are performance-based standards that result in total energy savings equivalent to ENERGYSTAR design-based standards for the four ENERGYSTAR window climate zones. While several of the zones show variations in energy savings among individual cities, on a population-weighted basis the overall energy saved for the zone is still equivalent to ENERGYSTAR. Large variations in energy savings within an ENERGYSTAR climate zone occur now with the design-based standards. The existing ENERGYSTAR windows program is not designed to provide the "best choice" window for a given city (or application), but to balance a number of factors that will result in superior energy savings for a zone when customers choose ENERGYSTAR windows over the status quo. Given that existing ENERGYSTAR design-based window standards were developed in this manner, this same method should be used for performance-based ENERGYSTAR window standards. The European Window Energy Rating System is already moving to a performance-based rating system and the U.S. should as well. As window technologies evolve, a performance-based rating system will be required. The DOE and its ENERGYSTAR windows program should adopt a performance-based rating system option now to allow manufacturers and code officials to become familiar with such a system.

Sincerely,



Gregory Patzer
Director of Communications &
Government Relations