

April 22, 2002

The Honorable David Garman  
Assistant Secretary, Energy Efficiency and Renewable Energy  
United States Department of Energy  
1000 Independence Avenue, SE  
Washington, DC 20585

Re: Energy Star Window Criteria

Dear Mr. Garman:

Given the recent submittals to the Department as set forth on the Energy Star website, in an excess of caution, I am writing to ensure that there is no doubt as to our position on the Energy Star Windows program criteria. Cardinal's position remains the same as it has been throughout the original and this subsequent process: **the proposal originally adopted by the Department last October (prior to the politicization of the issue) is the best solution for the country.**

Our reasoning is simple – the purpose for this modification of the program is to update the criteria in light of recent code changes. The October criteria match codes almost exactly, except in the central zone. In order to retain the existing look and complexity level of three zones, the central zone was modified for a maximum SHGC of 0.4 in order to be consistent with the code requirements in the southern half of the central zone. While no approach is perfect, we believe that this approach is the most conservative, while capturing the most energy-related benefits. The only real debate is whether applying the 0.4 SHGC to the entire central zone is a reasonable result. We submit that it is.

The stakeholder meeting demonstrated that as to the annual energy savings analysis and in the words of the Ed Barbour, the Department's analyst, the results are "within the margin for error" or "too close to call," removing annual energy savings from consideration as the determining factor. On virtually all other fronts, the 0.4 SHGC is clearly an acceptable, if not the preferred alternative. The peak demand savings, the air pollution savings, the cost savings and the improved year-round comfort from a window that addresses both summer and winter in the nation's heartland all support the 0.4 SHGC requirement. We believe this result is also supported by a majority of the industry.

Let's look at the comfort issue in a little more detail. The Barbour/Arasteh analysis uses equal glazing areas on four sides of the house (north, east, south, west). This "global" perspective may provide an adequate base to analyze the average performance of the neighborhood, but fails the individual homeowner in three out of four houses. Homeowners with a predominate orientation to the west, north, and east have precious little winter solar gain to benefit from yet in the case of east and west exposures are seriously impacted by summertime overheat conditions. Southern exposures do benefit from passive gains in the wintertime but unless there is substantial overhang to block the sun in the spring and fall, these rooms overheat badly at a time when the thermostat in the house is not set to provide cooling. The energy analysis assumes that a 78°F thermostat provides the same level of comfort regardless of glass type. If homeowners with high solar gain windows set their thermostat only a few degrees cooler to maintain comfort, the 0.4 SHGC becomes annual energy use positive across the US.

Some others in the glass industry have tried to use the SHGC issue as a rallying point for sputtered versus pyrolytic coatings, where the real issue is the consumer benefits of low solar gain versus the summer detriment of high solar gain. All of the glass manufacturers produce both types of products; in Pilkington's case both are pyrolytic, AFG and PPG make low solar gain by sputtering and high solar gain by pyrolytic (PPG also produces a high solar gain product by sputtering). Cardinal and Guardian produce high and low solar gain products with the sputtering process.

Given that Pilkington and AFG have endorsed a proposal submitted by Simonton after the stakeholder meeting, I also want to clarify our position why we think that this proposal does not work. First, it is troubling to be looking at yet another proposal when the March 20 meeting seemed to narrow down the proposals to two. Focusing specifically on their new proposal, the problems with this proposal, beyond the comfort discussions from above include: (i) the impact of a maximum 0.6 U-factor on aluminum manufacturers in the south; (ii) the added complexity and confusion from four zones; and (iii) the establishment of U-factors above 0.35 in the north, which is less stringent than the code. Cardinal, for one, does not want to exclude aluminum manufacturers who use low solar gain low E from the program in the southern zone. Additionally, the allowance of a higher U-factor in the northern zone will reduce comfort during the winter night.

Thank you for your consideration of our views.  
Sincerely,



Jim Larsen  
Director, Technology Marketing

cc: Mark Ginsberg  
Michael McCabe  
Richard Karney

