AGC
BEYOND GLASS

BUILDING

October 12, 2012

Ann Bailey
Director – ENERGY STAR Product Labeling
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC, 20460
Via email: mostefficient@energystar.gov

Re: Comments to Energy Star Most Efficient

Dear Ms Bailey,

Attached are AGC Glass Company North America's comments to EPA / DOE Most Efficient 2013 program requirements published on September 14, 2012.

Sincerely,

Jon Hughes
Director Marketing & Programs

cc: Christopher F. Correnti
Vice President, General Counsel and Secretary

AGC Glass Company North America ("AGC") submits the following comments to the Environmental Protection Agency's ("EPA") 2013 Energy Star Most Efficient Recognition Program - Residential Windows ("Most Efficient Program").

1. AGC Supports the ≤ 0.20 U-factors Proposed in the Criteria.

AGC is pleased to express its support the ≤ 0.20 U-factor as proposed in the Most Efficient Program criteria.

2. VT Is Not an Appropriate Measure of Residential Window Energy Efficiency.

In the proposed criteria for the Most Efficient Program, VT is defined as "Visible Transmittance." In the absence of lighting controls, the VT of a residential window is not an appropriate measure of its "energy efficiency." VT has no direct impact on energy efficiency. It could have an indirect impact on the energy efficiency of a home if the visible light transmitted through the window is used in conjunction with lighting controls to reduce the home's electrical lighting loads. However, the Most Efficient Program does not include criteria for residential lighting controls. Accordingly, the proposed VT criteria does not even have an indirect effect on the energy efficiency of a home.

The choice of one VT window over another in a residential environment is largely an aesthetic choice. Moreover, because VT is not material to the selection of an energy efficient residential window, the building codes do not specify a VT requirement for residential windows.

In the absence of lighting controls, there are no known studies or data to suggest that windows with a VT ≥ 0.40 will cause homeowners to use less electrical lighting than they would with windows having a VT of 0.30 or 0.35. Moreover, even if such studies did exist, homeowners could negate the intended daylighting effect of a 0.40 VT window, simply, by closing the window shades and turning on the lights.

Since VT, standing apart from lighting controls used to reduce electric lighting loads, has no direct effect on the energy efficiency of the windows, VT should not be included in the criteria developed for or implemented in the Most Efficient Program.

3. SHGC Is an Appropriate Measure of Residential Window Energy Efficiency.

SHGC is defined as the ratio of the solar heat gain entering the space through the fenestration assembly to the incident solar radiation. While there is a small overlapping relationship between SHGC and VT, SHGC is a far better measure of the energy efficiency of a window than VT. Specifically, VT does not consider either ultraviolet or

infrared light.[1] Accordingly, VT accounts for less than half of the solar radiation that passes through a window. SHGC, on the other hand, takes into account the entire spectrum of solar radiation that will result in solar gain through a window.

Again, because VT is not an appropriate measure of the energy efficiency of residential windows, there is no VT requirement in the residential building codes and VT should not be included as a criteria in the Most Efficient Program.

4. The Criteria Should Include a Minimum SHGC in the Northern Zone.

If ultra-low SHGC windows are included in the Most Efficient Program in the north, they will contribute to the need to burn additional fossil fuels in order to compensate for the loss of solar gain through the windows during the winter heating season. Using RESFEN and DOE2 modeling, the heat losses caused by ultra-low SHGC windows during the heating dominated winters of the northern zone more than outweigh any increased cooling loads experienced during the summer.[2] Moreover, during the summer, heat from the windows with no natural or other shading can easily be remedied by opening the windows, using ceiling or attic fans or, simply, closing drapery.

In order to realize a maximize aggregate national energy savings and aggregate individual homeowner savings in the north from the Most Efficient Program, its criteria should include a minimum 0.30 or 0.35 SHGC rather than the "any" SHGC that is currently proposed in the northern zone.

[1] The solar spectrum consists of ultraviolet light with wavelengths ranging from 300-390 nanometers ("nm"), visible light (390-770 nm) and infrared light (770-2100 nm). The distribution of energy within the solar spectrum is approximately 2% ultraviolet ("UV"), 46% visible and 52% infrared ("IR"). Solar-control glass may have a variety of coatings that reflect solar energy, i.e., those energy wavelengths from 300-2100 nm. GANA Glazing Manual, p. 6 (1997).

[2] In its presentation to Energy Star stakeholders on August 27, 2012, LBNL concluded that even with a 0.27 SHGC and a 0.27 U-factor in the northern zone, a total of 0.51 TBtu's of energy would be saved over the earlier Energy Star criteria. Specifically, this 0.51 TBtu's consists of 0.67 TBtus of saved heating energy and a 0.15 TBtu increase in cooling loads. Hence, the amount of heating energy saved far outweighs any increase in cooling loads. With a minimum 0.35 SHGC, LBNL concluded that the national aggregate energy savings in the north would ***DOUBLE***.