



October 18, 2018

Doug Anderson
Energy Star Program Manager – Residential Branch
United States Environmental Protection Agency
Via email to: windows@energystar.gov
Anderson.doug@epa.gov

Dear Doug:

On behalf of AGC Glass Company North America, Inc. (“AGC”), I am pleased to provide you with some thoughts responsive to the following questions posited at pp. 8-12 in your V7.0 Energy Star (“EStar”) Discussion Guide.

Question 1: Should EStar’s Southern and South-Central Zones be combined?

Answer: AGC does not believe that EStar’s two southern zones should be combined.

The Southern and South-Central zones have distinctly different climates, with the Southern zone being the hotter of the two. While both zones currently share a common 0.25 SHGC criteria, there are now products capable of achieving a 0.23 SHGC. This lower SHGC, while appropriate for consideration in EStar’s Southern zone, would not necessarily be appropriate for the South-Central zone. Moreover, the EStar U-factor criteria for the Southern and South-Central zones appropriately diverge, with the Southern zone requiring a ≤ 0.40 U-factor and the South-Central zone requiring a lower ≤ 0.30 U-factor. Since temperatures in the Southern Zone are typically warmer than in the South-Central zone, higher U-factors are necessary in the Southern zone to allow the thermal mass of buildings to cool at night. Without these higher U-factors, daytime cooling loads would rise, resulting in higher, not lower, energy costs.

Question 2: Should there be a minimum SHGC in EStar’s Northern zone?

Answer: AGC believes that there should be a minimum SHGC in the Northern zone.

The absence of a minimum SHGC in the Northern zone permits the use of extremely low SHGC products. These are typically IGUs with triple silver low-e coatings. They block as much as 75% to 78% of the sun’s free solar energy from entering homes in the winter months. While appropriate in the Southern and South-Central zones, they are completely inappropriate for the Northern zone.

By blocking the beneficial rays of the sun from entering Northern zone homes in the winter, these extremely low SHGCs windows force homeowners to burn more fossil fuels to heat their homes. The use of higher SHGC windows in the heating dominated Northern zone would reduce the consumption of fossil fuels by allowing the free and renewable heat of the sun to do some of the work of heating homes.

Combinations of 4th surface and 2nd surface low-e coatings can deliver larger energy savings to the Northern zone through lower U-factors and higher SHGCs than triple silver low-e coated IGUs. Labeling EStar windows with a minimum SHGC would encourage Northern zone homeowners to use higher SHGC windows that permit the sun's free, renewable energy to heat their homes in the winter.

Question 3: Should Climate Zone 5 be moved to EStar's North-Central Climate Zone?

Answer: AGC does not believe that Climate Zone ("CZ") 5 should be moved to EStar's North-Central Climate Zone.

EStar's North-Central zone currently ends at Ohio's southern border. Moving CZ 5 to EStar's North-Central zone would move the North-Central zone northward through ALL of Ohio and half-way into the State of Michigan.

Admittedly, changes have been made to ASHRAE 90.1's CZ maps and some of the southernmost counties in CZ 5 have moved to CZ 4. However, nothing in these recent ASHRAE CZ map changes would warrant moving all of CZ 5 to EStar's North-Central zone.

Questions 4, 5 and 6: Should the EStar windows criteria be applied to full lite sliding patio doors? Should EStar sunset its door and skylight criteria?

Answers: AGC has no objection to applying EStar windows criteria to full lite sliding patio doors or sunseting its door and skylight criteria.

Question 7: Should EStar address dynamic and integrated shading systems in its window program?

Answer: AGC believes the market for integrated shading systems will grow in the next few years, particularly since the Attachments Energy Ratings Council ("AERC") is now labeling the energy efficiency of such systems. While it is expected to grow in the commercial market, AGC is not as hopeful that the residential market for dynamic glazing will grow significantly in the near future.

Questions 8 and 9: Should EStar provide allowances for high altitude or impact resistant products? Should EStar consider extending the 9-12-month effective date of EStar criteria?

Answer: AGC has no opinion as to allowances for high altitude products and does not believe any EStar allowance is necessary for impact resistant products. AGC sees no need

to consider extending the 9-12-month effective date for implementing EStar criteria except, as needed, on a case-to-case basis.

Other issues raised in the EStar V7.0 Discussion Guide:

1. Pathways Methodology (pp 5-6):

The Pathways Methodology described in the Discussion Guide is proposed to identify common pathways that manufacturers use to certify products at different performance levels and to confirm that consumers will be able to select from several viable technology options. AGC supplies glass to residential window manufacturers and is satisfied with EStar's intention to use the Pathways Methodology.

2. Product Costs (pp 6-8):

Cost-effectiveness is part objective and part subjective. One man's compact car is another man's Ferrari, while both provide transportation. An above-code program of product evaluation such as EStar would properly consider a cost-effectiveness criteria that is, to some extent, longer than cost-effectiveness criteria used to evaluate base-line code changes such as ASHRAE 90.1, or the International Energy Conservation Code/IRC energy code (IECC/IRC").

ASHRAE 90.1 has developed a rather complex methodology for determining whether proposed base line code changes are cost-effective. The ASHRAE methodology may be worth evaluating to determine whether it, or parts of it, provide insight for establishing an EStar cost-effectiveness criteria.

The National Association of Home Builders (NAHB) has established a maximum 10-year payback for the cost-effectiveness of base line code changes.

The IECC/IRC, simply, considers whether a base line code change will or will not add to the cost of construction as a part of the debate that determines whether to accept, reject or modify the proposed code change.

3. Cost of EStar WDS (pp 7-8):

AGC finds EStar's proposed 3-part methodology for estimating the costs of EStar WDS acceptable and will likely be more accurate than methodologies used in the past.

Conclusion

AGC appreciates the opportunity to submit these comments in response to the issues presented in the EStar V7.0 Discussion Guide.

Very truly yours,

/s/ *Thomas S. Zaremba*
Thomas S. Zaremba

