



**PILKINGTON NORTH AMERICA, INC.**

811 Madison Avenue  
Toledo, Ohio 43604-5684  
Phone: 419-247-4752  
Fax 419-247-4517

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Mr. Doug Anderson  
Energy Star Home Improvement Program  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

Dear Doug,

**Comments of  
NSG Group/Pilkington North America  
Regarding the Development of Energy Star Windows Version 7.0**

NSG Group/Pilkington North America (“PNA”) submit these comments to the U.S. Environmental Protection Agency (“EPA”) for consideration in the development of the next criteria for Energy Star Windows, Version 7.0 (“Energy Star”).

At its Industry Stakeholder Meeting held on December 12, 2014, EPA articulated a number of goals. They included enhancing the transparency in the way criteria are proposed and developed and greater industry participation and collaboration in that development process.

The ability of Stakeholders to submit comments this early in the process of developing the next generation of criteria for Energy Star Windows reveals a process that is already achieving EPA’s goals of enhanced transparency and industry collaboration.

**1. Consideration Should be Given to Making  
the U.S. and Canadian Energy Star Criteria the Same.**

Careful consideration should be given to making the Energy Star criteria in the U.S. and Canada the same.

Canada and the U.S. share a 5,600 mile long boarder, extending from the Atlantic to the Pacific Oceans. Canada has been an International Partner in the U.S. Energy Star Program since 2001.

The U.S. is Canada's largest economic trading partner and, the reality is, there are no float plants located in Canada. Accordingly, the glass and other components used in windows and skylights found in Canada are the same as those used in windows and skylights found in the United States. Additionally, although Canada's Energy Star Program has three Climate Zones, most Canadians live in Climate Zones 1 and 2 which are essentially the same as the Northern Climate Zone used in the U.S. Energy Star Program. These factors naturally lead to the conclusion that serious consideration should be given to making the criteria for Energy Star Windows the same in both countries.

An examination of the specific criteria used in the Canadian and the U.S. Energy Star Programs also supports this. The U.S. Energy Star Program uses a prescriptive U-factor, multiple SHGC/U-factor equivalents and air leakage as the primary criteria to distinguish energy efficient windows in its Northern Climate Zone. Similarly, the Canadian Energy Star Program uses a prescriptive U-factor coupled with air leakage and an Energy Rating ("ER") alternative as its criteria to identify energy efficient windows.

The criteria used in Canada and the U.S. Energy Star's Northern Zone are remarkably similar. Both use a prescriptive U-factor; both use air leakage; and, while the U.S. uses multiple SHGC/U-factor equivalents, the ER used in Canada balances U-factor, passive solar gain and air leakage in a single formula.

The similarities between the two Programs are significant and likely outweigh any differences. Having the same criteria in both countries would allow manufacturers to meet a single criteria and mark their products with a single label, whether the product is destined for use in Canada or the U.S. This would reduce manufacturer's costs, which, could, in turn, benefit consumers.

In short, consideration should be given to making the Energy Star Windows criteria in the United States and Canada the same.

## **2. The Criteria Currently Used to Determine the Efficiency of Energy Star Windows Are Objective, Product Neutral and Generally Accepted by the Fenestration and Construction Industries.**

As indicated above, the primary criteria used to determine whether fenestration products qualify for an Energy Star label are U-factor, SHGC and air leakage. All of these criteria are objective, product neutral, and generally accepted in the fenestration and construction industries as appropriate measures of fenestration energy performance.

These criteria should continue as the primary basis for determining whether fenestration products qualify for an Energy Star label. Other criteria, such as “comfort,” are subjective and that subjectivity can be used to favor one product over others. Criteria that are not objective, product neutral, or, are not generally accepted in the fenestration and construction industries, should not be considered for use in the Energy Star Program.

Having said that, the ER formula used in Canada is objective, product neutral and generally accepted in both the fenestration and construction industries for its ability to combine U-factor, SHGC and air leakage in a single metric. Greater consideration should be given to using ER in the Northern Zone of the U.S. Energy Star Program.

## **3. A Minimum SHGC is Needed in the Northern Zone.**

The prescriptive U-factor in the Northern Zone still permits the use of “any” SHGC. Effectively, this means that many triple silver low-e products with U-factors below the 0.27 prescriptive U-factor currently required and an SHGC value of 0.25 is eligible for an Energy Star label in the Northern Zone. The inappropriateness of allowing this is evident from the simple fact that the low SHGC of this product also qualifies it for an Energy Star label in the Southern Zone!

Allowing ultra-low SHGC products to be Energy Star labeled in the Northern Zone ensures that approximately 75% of the sun’s free energy will be blocked by the window and, thus, be unavailable to heat homes in the heating dominated Northern Zone. In turn, this increases the consumption of non-renewable fossil fuels, increases CO<sub>2</sub> production and increases the utility costs paid by homeowners.

Additionally, allowing ultra-low SHGC products designed for use in cooling dominated climates to earn an Energy Star label in northern, heating dominated climates, inappropriately makes the Energy Star label a “one size fits all” criteria rather than a criteria based on energy efficiency. This is because, under the current “any” SHGC criteria in the Northern Energy Star Zone, ultra-low SHGC products can qualify for an Energy Star label, not only in the Southern Zone, but also in the South Central, North Central and Northern Zones.

This “one size fits all” aspect of the current Energy Star criteria also enables some window makers to market a single ultra-low SHGC product bearing an Energy Star label as far south as Miami, Florida and as far north as Alaska. This, in turn, likely result in high levels of market penetration for Energy Star labeled products that are based more on the ease of marketing a “one size fits all” product throughout the entire United States, rather than by meeting the highest energy conservation standards that the Energy Star Program is intended to provide.

A minimum SHGC is critical to ensure that only fenestration products that are truly energy efficient qualify for an Energy Star label in the Northern Zone.

#### **4. A 0.22 Northern Zone U-factor Should be Considered.**

Currently, the Energy Star prescriptive U-factor is 0.27 in the Northern Zone. The prescriptive U-factor in Canada’s Energy Star Climate Zone 2 is 0.25. The Most Efficient U-factor Criteria is 0.20. The stringency of the Northern Zone criteria has lagged far behind that of the other Energy Star Climate Zones.

The technology to move the market toward significant U-factor reductions currently exists and U-factors should move below the prescriptive U-factor currently in place in the U.S. and Canadian Energy Star Programs. A 0.22 U-factor is both achievable and appropriate for the Energy Star label in the Northern Zone.

#### **5. The Energy Star Program Should Consider Including Low-e Storm Windows.**

Low-e Storm Windows should qualify for an Energy Star label. Low-e storms have a tremendous potential to reduce energy use (at a cost far lower than replacement windows) when used in combination with even monolithic

glazing. The existing building stock consists of millions of homes that were built with monolithic glazing and that would benefit significantly from the use of low-e storm window.

**6. The Energy Star Program Should Consider  
Including Dynamic Glazing, PV and Vacuum Insulating Glazing.**

The Canadian Energy Star Program already includes Dynamic Glazing. The U.S. Energy Star Program should include it too.

Additionally, PV has the potential to make windows and skylights as energy sources and should be considered for inclusion in the Energy Star Program.

Vacuum Insulating Glazing has the potential to significantly lower U-factors in windows that weighs less, use less raw materials, and are significantly thinner than triple glazed unit. Vacuum Insulating Glazing should also be considered for inclusion in the Energy Star Program.

Very truly yours,



Stephen E. Weidner  
Regional Director, Sales & Marketing  
and Technical Glass Products  
Architectural Glass North America

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