



Christian G. Magnuson

President/Chairman

September 12, 2013

Mr. Doug Anderson  
Environmental Protection Agency  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

**Re: ENERGY STAR for Windows, Doors, and Skylights – Version 6.0 Proposed Product Specifications**

The ENERGY STAR 6.0 Specification development cycle has been conducted throughout one of the worst economic periods in our Nation's history. Encouraging a reduction in the enormous amount of energy consumed annually by American homeowners, while ensuring that ENERGY STAR-qualified products remain an affordable incentive for homeowners has proven to be a tremendous challenge for consumers, stakeholders and the EPA.

While critical items to be addressed remain, Wasco (Skylights) Products, Inc. would like to take this opportunity to thank EPA for acknowledging and addressing several areas of concern raised during this comment period.

EPA's decision to postpone implementation of ENERGY STAR 6.0 is an excellent example of the stakeholder comment and EPA response process used to develop ENERGY STAR specifications. This method has proven successful in developing specifications that achieve energy-saving standards expected by consumers when purchasing ENERGY STAR products and allowing manufacturers the necessary time to implement product design changes.

**National Energy Use Reduction, ENERGY STAR Product Costs and Consumer Sentiment**

It is crucial for EPA to consider and apply the following concepts before finalizing Version 6 product criteria:

- The 30% tax credit that prompted the significant increase of ENERGY STAR window, door and skylight sales, no longer exists. The current 10% (\$200 maximum) has proven to be a "non-starter" in terms of encouraging homeowners to invest in ENERGY STAR products. Basing any future consumer purchase assumptions on fenestration sales during the years offering significant tax credits will lead EPA to erroneous conclusions regarding consumer sentiment on paying for higher priced ENERGY STAR products.
- In 2009, the availability of the 30% tax credit also provided manufacturers with the encouragement needed to invest in the costly production of fenestration products meeting the increased stringency requirements – as consumers were far better positioned to make the product investment when the tax incentive was in play. The costs to manufacture products to V6 requirements meet or exceed the investment made to achieve 2010 standards. However, the incentive for homeowners to invest in products that carry a payback period that significantly extends beyond previous versions, without the benefit of a substantive tax incentive, is a difficult decision for product manufacturers who must weigh these high-cost investments against the ability to predict cost-recouping product sales.
- The ENERGY STAR Most Efficient program for windows has set extreme stringency requirements that will offer aggressive energy-efficiency for the consumer market segment currently in a position to invest in these expensive technologies.

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- In order to be truly effective at reducing the significant amounts of energy wasted annually in homes that currently contain highly inefficient fenestration, the EPA must continue to use the ENERGY STAR program to draw this segment toward product replacement. This initiative can only be achieved through homeowner education and ensuring that non cost-prohibitive products remain available.

The simple reality is that most of the nation's least efficient Windows, Doors and Skylights are installed in homes where the owners simply cannot afford to invest in replacements. Many states, cities, municipalities and utility providers are working to provide financing mechanisms that will allow energy-efficient purchase incentives with financing option that offer these homeowners an affordable path toward properly retrofitting their homes. Many of these programs are tied to the purchase and installation of ENERGY STAR products. These programs have grown in popularity over the preceding 24 months and indications show continued support.

Increasing product costs and subsequently placing ENERGY STAR products further out of the reach of these programs and homeowners will only serve to impede the success of these progressive initiatives and again, put the U.S. on a path toward increased energy consumption.

Wasco strongly urges EPA to consider these factors, both when reviewing the following comment and when considering the full impact of the final ENERGY STAR Version 6 criteria on consumers, stakeholders and the ENERGY STAR program.

#### **Skylight and Tubular Daylighting Devices (TDDs)**

Continuing to dismiss the overall benefits of daylighting on humans and the energy savings realized by reducing the need for artificial lighting has created an ENERGY STAR program for skylights and TDDs that continues to lead to prohibitive manufacturing costs, while significantly decreasing advantages provided by these products. Studies have been conducted to show the value of introducing daylighting, that the EPA can use to glean essential information. These analyses must be reviewed, and the information must be used, for skylight and TDD properties to be correctly developed by EPA.

#### **Wasco recommends that EPA must take the necessary steps to separate TDDs and skylight criteria.**

Continuing to apply the same performance criteria to TDDs and skylights results in inaccurate comparisons and ultimately distorts and provides erroneous conclusions for builders and homeowners.

Until skylights and TDDs are treated as separate and individually effective energy conservation products, SHGC limits will remain difficult for both products to achieve without major reductions in transmitted light; **defeating each products' purpose of delivering daylighting and value to consumers.**

#### **Tubular Daylighting Devices**

Although EPA suggested in October, 2011, that they would use the ES 6.0 Development period to address the significant distinctions between Skylights and TDDs, the initial proposed specification dismissed the EPA position and again, placed on hold, the decision to properly account for Tubular Daylighting Devices within the ENERGY STAR program. Postponing appropriate recognition of the valued performance of these products until Version 7 is issued is an unacceptable option.

Wasco asks EPA to recognize the following updates pertaining to TDDs:

- Wasco requests that an interim Version 6.0 ENERGY STAR addendum be considered which includes separate qualification criteria for TDDs once new testing data is available for review in the next few months. NFRC has approved procedures for VT ratings for TDDs (NFRC 203), which will allow TDDs to meet emerging code requirements for minimum VT. A testing apparatus is currently under construction, and should be available and accredited to this procedure beginning in early 2014.

Also, proposals are being considered to modify NFRC's size adjustment formula for TDD U-factors, which may affect those ratings as well.

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- Based on this new data, Wasco encourages a study evaluating light to solar heat gain ratios (LSG) relative to TDDs. EPA needs to reevaluate assumptions that SHGC reductions do not affect daylight availability, particularly for TDDs.
- Wasco asks EPA to justify the methodology used in calculating the percentage of qualifying TDDs based on the CPD review discussed in comment 1 response. It is not apparent how the percentages can be added without knowing the numbers in each climate zone.

Continuing to apply the same performance criteria to TDDs and skylights results in inaccurate comparisons and ultimately distorts and provides erroneous ratings for builders and homeowners. The fact is; TDDs are used in many places where skylights cannot be used. Their design and function differ to meet significantly distinctive consumer needs which justifies separate treatment in the criteria.

### Skylight Criteria Development

EPA has not technically justified lower than IECC SHGC criteria for skylights in South and South Central zones. Window criteria in both zones is at code maximum, therefore the same relationship should be applied to skylights resulting in SHGC criteria of 0.30.

The current 0.48 U-factor in both the Northern and North Central Zones disqualifies approximately 80% of double-pane curb mount skylights available today. A slight increase to a 0.50 U-factor maintains a 10% increase over DOE proposed 2015 IECC proposed values of 0.55 and allows a wider range of such skylights to meet ENERGY STAR qualifications. The number of eligible products within the CPD would double from 6% - 12% and have an equivalent or slightly higher incremental cost increase.

The determination to offer a 0.50 U-factor compromise to EPA was done with the thought that EPA would recognize the severe constraints that will be placed on both manufacturers and the market. This level of stringency will significantly alter both the cost of compliant skylights and the number of ENERGY STAR-qualified products competing with cheaper alternatives available in most big box stores.

The Department of Energy has requested that 2012 IECC U-factor values of 0.55 for both the Northern and North-Central Climate Zones be maintained within the developing 2015 IECC.

Allowing a 0.50 U-factor rating in the North and North-Central Zones greatly exceeds the current IECC and surpasses current DOE proposed 2015 IECC requirements by a full 10%. Additionally, as it is assumed that qualifying skylights and TDDs will soon be incorporated into the ENERGY STAR "Most Efficient" program, it is difficult to ascertain how EPA will expect manufacturers to achieve further U-factor and SHGC revisions to meet any proposed "Most Efficient" Program criteria without considerably sacrificing the performance attributes and benefits of these products.

DRAFT CRITERIA FOR SKYLIGHTS								
	U-Factor				SHGC			
Climate Zone	Current ES Criteria	EPA Draft Criteria	DOE Proposed 2015 IECC	Wasco Recommendation 2012	Current ES Criteria	EPA Draft Criteria	DOE Proposed 2015 IECC	Wasco Recommendation 2012
Climate Zone	Maximum U-Factor	U-Factor	U-Factor	Maximum U-Factor	Maximum SHGC	SHGC	SHGC	Maximum SHGC
Northern	0.55	≤ 0.48	0.55	0.50	Any	Any	NR	Any
North-Central	0.55	≤ 0.48	0.55	0.50	0.40	≤ 0.35	0.40	0.40
South-	0.57	≤ 0.50	0.55	0.55	0.30	≤	*0.20/0.25	0.30

<b>Central</b>						0.28		
<b>Southern</b>	0.70	≤ 0.60	<b>Z1-0.75</b> <b>Z2-0.65</b>	0.65	0.30	≤ 0.28	*0.20/0.25	0.30

\* Exception: Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

### Economic Analysis

To conduct the cost analysis for windows, EPA correctly chose to examine double-hung windows as, according to EPA statements, they were found to be “...the most commonly sold type of window and are also typically the worst performing by virtue of their low glass-to-frame ratio. By basing its decisions primarily on the performance of double-hung windows, EPA is taking a conservative approach towards specification development.”

EPA’s examination of skylight costs should have employed these same principles, however it did not. Skylight products vary greatly and are not interchangeable as assumed within EPA’s cost analysis. To properly assess costs, applying the techniques used for window analysis, data on the most commonly sold “curb mount” type (42% of market share) should have been utilized to qualify assumptions on projected cost increases and product payback periods.

AAMA asks EPA to once again, conduct a suitable and accurate cost analysis based on the information provided and assess the revised data before finalizing the Version 6 criteria. AAMA Members have offered to be available to EPA with any assistance needed in conducting this revised analysis.

### EPA Retailer Sourced Skylight Cost Data Spreadsheet

The data contained in this spreadsheet does not accurately reflect the “installation ready” cost of many of the skylight products listed. Perhaps it has been assumed that, as is common with many single factory assembled window units, all unit skylight products come in a single package ready for installation (i.e. “installation ready”). However in the case of Velux deck mount models and all curb mount skylight models listed (Sun Optics and Velux) a separate flashing kit either supplied by the manufacturer or others (i.e. the installer) is required for installation. If this additional cost is not included it significantly understates the product cost relative to products which do come out of a single package “installation ready”. In addition the use of the “Glass” in the title of the spreadsheet is not accurate because it also includes “Plastic Dome” skylights.

### Future Fenestration Criteria Development

As discussed at the opening of this Wasco comment, the current ENERGY STAR criteria development process of EPA-issued criteria proposals followed by stakeholder comment is a cornerstone to the success of the ENERGY STAR program. Stakeholder involvement through comment periods and in-person meetings throughout the advancement of the ENERGY STAR continues to be a crucial component in creating a program that greatly enhances product availability and consumer satisfaction.

### Conclusion

The ENERGY STAR program has achieved tremendous success in informing and attracting homeowners to reduce their energy consumption through recognized high performing products.

Combining the ENERGY STAR brand with the current U.S. goal of significantly decreasing annual energy waste has to remain a cohesive, joint goal of government and industry.

Launching and implementing the needed retrofitting of U.S. homes that now contain severely underperforming fenestration products should remain a steadfast focus for EPA and Industry Stakeholders. The ENERGY STAR program can be an effective and successful tool used to accomplish this goal.

We fully appreciate the work and dedication of those involved in developing and supporting the ENERGY STAR program. Wasco remains dedicated to providing input to EPA to help create a workable, affordable consumer-friendly program that achieves the goal of helping Americans save energy in their homes.

Thank you for this opportunity to comment on the proposed revisions to ENERGY STAR. We are available to discuss any of our recommendations, at your earliest convenience.

Sincerely,

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