

**WMA Comments**  
**ENERGY STAR for Windows, Doors, and Skylights**  
**Version 7.0 Specification Discussion Guide**

**Respectfully Submitted by World Millwork Alliance (WMA)**

**October 18, 2019**

WMA welcomes the opportunity to comment on certain elements of the Version 7.0 Specification Discussion Guide of ENERGY STAR for Windows, Doors, and Skylights released September 4, 2019 by the U.S. Environmental Protection Agency (EPA).

The comments below relate to Table 1. ENERGY STAR Market Share by Year; additional component categories to consider in estimating incremental costs; applying ENERGY STAR Windows specification to full-lite sliding patio doors; sunseting the ENERGY STAR Door criteria; and extending the implementation schedule for Version 7.0.

***Table 1. ENERGY STAR Market Share by Year***

**Comment:** It is not clear what criteria was used in establishing market share of Hinged Entry Doors in Table 1 of the Discussion Guide. How did the market share percentages referenced between 2009 and 2017 factor in opaque doors and doors of various lite configurations? Were they averaged out? Market share percentages of opaque doors that are ENERGY STAR qualified should differ from the market share of ¼ lite doors, which should differ from ½ lite doors, which should differ from ¾ lite doors, which should differ from full lite doors.

Current Version 6.0 ENERGY STAR qualification requirements for doors breaks down performance requirements for opaque, ≤ ½ lite, or > ½ lite as follows, which WMA suggests might be too broad to accurately track market share:

<b>Table 2: Energy Efficiency Requirements for Doors</b>			
<b>Glazing Level</b>	<b>U-Factor<sup>1</sup></b>	<b>SHGC<sup>2</sup></b>	
Opaque	≤ 0.17	No Rating	
≤ ½-Lite	≤ 0.25	≤ 0.25	
> ½-Lite	≤ 0.30	Northern and North-Central	≤ 0.40
		South-Central and Southern	≤ 0.25

**Recommendation:** WMA asks EPA to consider breaking down the market share for hinged entry doors by slab glazing categories as defined by NFRC, since NFRC is the prerequisite for ENERGY STAR qualification and performance ratings are established for the following door lite categories: opaque, ¼ lite, ½ lite, ¾ lite, and full lite.

***Additional Component Categories to Consider in Estimating Incremental Costs***

**Comment:** EPA is asking stakeholders if there are any additional component categories that should be considered in their research when estimating incremental costs by comparing the total cost of components needed to achieve performance improvements.

Doorglass assembly components constructed with the same materials but at different sizes will perform at different levels in a side-hinged door system depending on the square inches of glazing area in relation to the door slab. It is easier for ¼-lites to qualify for ENERGY STAR than ½-lites, and it is easier for ¾-lites to qualify than full-lites for many glazing packages. (See attached Exhibit 1).

NFRC 100 references glazing area by square inches in categories of ¼ lite, ½ lite, ¾ lite and full lite IG units. See below - Glazing area by square inches as defined in Table 5-1 of the NFRC 100 and the NFRC Door Label:

**Table 5-1 – Glazing and Divider Patterns for Doors**

<b>Individual Product</b>	<b>For Doors with</b>	<b>Simulate or Test as<sup>1</sup></b>	<b>Optional Caming Pattern</b>
1/4 glazing	glazing < 0.265 m <sup>2</sup> (411 in <sup>2</sup> )	534 mm x 457 mm (21 in x 18 in)	5 vertical 1 horizontal
1/2 glazing	0.265 m <sup>2</sup> ≥ glazing < 0.581 m <sup>2</sup> (411-901 in <sup>2</sup> )	534 mm x 889 mm (21 in x 35 in)	5 vertical 8 horizontal
3/4 glazing	0.581 m <sup>2</sup> ≥ glazing < 0.710 m <sup>2</sup> (901-1101 in <sup>2</sup> )	534 mm x 1194 mm (21 in x 47 in)	5 vertical 10 horizontal
Full glazing	glazing ≥ 0.710 m <sup>2</sup> (1101 in <sup>2</sup> )	534 mm x 1600 mm (21 in x 63 in)	5 vertical 13 horizontal

<sup>1</sup>Glazing dimensions indicate daylight opening size

Figure A-20: Sample Temporary Swinging Door Matrix Label (2013)

		<p align="center"><b>World's Best Door Co.</b></p> <p align="center"><b>Entrance Door</b></p> <p align="center">Insulated Steel Edge Door</p> <p align="center">XYZ-X-1*</p>			
<b>ENERGY PERFORMANCE RATINGS</b>					
Product Description** Default Frame*** Wood	U-Factor <sup>1</sup> / Solar Heat Gain Coefficient (SHGC)				
	Individual Option Number				
	1/4 Lite ≤410†	1/2 Lite ≤900†	3/4 Lite ≤1100†	Full Lite >1100†	
2/A1/na/AIR/0.250	0.29 / 0.06 00001-00001	0.30 / 0.19 00001-00002	0.36 / 0.33 00001-00003	0.40 / 0.40 00001-00004	
2/A1/.020(3)/ARG/0.750	0.21 / 0.04 00002-00001	0.24 / 0.11 00002-00002	0.26 / 0.31 00002-00003	0.28 / 0.36 00002-00004	
2/A1/na/AIR/0.675	0.23 / 0.05 00003-00001	0.28 / 0.13 00003-00002	0.33 / 0.34 00003-00003	0.34 / 0.40 00003-00004	
3/S5/na/AIR/0.250	0.21 / 0.04 00004-00001	0.25 / 0.10 00004-00002	0.27 / 0.35 00004-00003	0.29 / 0.40 00004-00004	
Flush / Embossed 00005-00001	U-Factor <sup>1</sup> 0.19		SHGC 0.04		
Air Leakage ≤0.5 cfm/ft <sup>2</sup>					

**Recommendation:** EPA should consider researching incremental costs by comparing the total cost of an IG unit used in an ENERGY STAR qualified door at the various glazing sizes defined by NFRC.

**Applying ENERGY STAR Windows Specification to Full-Lite Sliding Patio Doors**

**Comment:** In terms of current ENERGY STAR requirements, if sliding patio doors are placed into the window category the only additional performance requirement for them to meet would be a 0.27 U-factor in the Northern climate zone. In the Southern climate zone, the U-factor requirement would be less restrictive at 0.40. All other performance criteria remain the same as it does for greater than 1/2 lite doors, which is the category that sliding patio doors are currently placed.

WMA agrees that sliding patio doors share more components and features with windows than swinging doors, but in terms of performing similarly to windows, an argument can be made that when it comes to air leakage performance, sliding patio doors perform worse than a double hung window, for example, given how they're installed and used.

## ***Sunsetting the ENERGY STAR Door Criteria***

**Comment:** Side-hinged exterior doors are fenestration products. They make up a portion of a structure's envelope just as sliding patio doors do and just as windows do. Building codes have stringent performance requirements for doors as they do for windows. The thermal performance of side-hinged doors is of importance in the building codes and they should be in the ENERGY STAR program as well.

Why and how are side-hinged door products showing longer payback periods than windows if “EPA seeks to isolate the cost increases that come from features and components that affect energy performance” only, as opposed to other product features when it comes to evaluating cost-effectiveness?

There is definitely value in the ENERGY STAR brand when it comes to differentiating higher performing products and side-hinged doors should not be excluded.

### **Recommendations:**

1. WMA recommends maintaining ENERGY STAR specification requirements for swinging doors.
2. When studying whether additional cost-effective energy savings are possible for swinging doors, WMA recommends that EPA analyze how the various lite configurations (per NFRC 100) of a given glazing package impact the thermal performance of swinging doors.
3. These NFRC lite configurations should be incorporated into Version 7.0 and replace the current grouping of performance criteria which is based on equal to/less than or greater than ½ lite configurations. The current breakdown is too broad as the attached data in Exhibit 1 demonstrates.
4. After the appropriate analysis is completed, rather than sunseting, WMA recommends freezing performance criteria for those lite configurations where improved performance would not be deemed cost-effective.

## ***Extending Implementation Schedule***

**Comment:** EPA should consider extending the effective date beyond 9-12 months after the release of the final specification for Version 7.0.

**Recommendation:** WMA recommends that EPA extend the effective date to **18 months** after the release of the final specification, which has in the past taken place at the beginning of the calendar year. Budgeting for many producers takes place in August/September of any given year in preparation for the following year, so 18 months allows for the production of products budgeted for improvement to meet any new ENERGY STAR criteria.