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February 12, 2016

Mr. Douglas Anderson, Project Manager
U.S. EPA (Mail Code 6202A)
Washington, DC 20460

Via E-Mail: windows@energystar.gov
(Total of 4 pages)

Dear Mr. Anderson:

RE: Specification Framework Document – Energy Star for Exterior and Interior Storm Panels

Mon-Ray, Inc. is encouraged and pleased to learn Energy Star is proposing a certification standard and procedure for secondary windows. Our business has been involved manufacturing high performance secondary glazing windows since 1947. We have a strong commitment to providing quality, long lasting products, designed to provide energy savings, minimize maintenance expenses, abate annoying outside noise and provide lasting comfort and safety.

The improvement in energy savings Energy Star is proposing to homeowners to add secondary windows to their primary windows, whether their primary windows are single glazed or dual glazed, can be more significant than the improvements homeowners can attain by replacing their primary windows with new primary windows.

Yes, we agree adding a secondary window to an existing primary window will improve the overall thermal performance of the window opening, especially if the glass in the new secondary window includes a Low-E coating. However, the energy savings can be even more significant by reducing the amount of air leakage with a properly designed secondary window. In simple terms, secondary windows provide a "dual window system", working in "tandem" with the primary windows to create two seals to reduce air leakage.

Since all manufacturers have access to the different glazing options available in the market place, such as Low-E coatings, we believe the critical importance is the window's design and long-term value in effectively reducing the amount of air infiltration / exfiltration, as well as, minimizing potential water penetration and providing secure and safe structural performance.

As requested in the Specification Framework Document, the following are our comments and recommendations for your consideration:

Proposed Definitions:

We recommend the Product Definition for "1. Exterior storm panel" be changed to "1. Exterior Secondary Window and the Product Definition for "2. Interior storm panel" be changed to " 2. Interior Secondary Window". We recommend these changes based on the following:

By definition, a “storm” window, or “storm” panel, is a secondary window installed to the exterior of a primary window to help protect the primary window from the “storm” (rain, sleet, snow, etc.). If a secondary window is installed to the interior of the primary window, it provides no "storm" protection for the primary window. In such case, the primary window is the “storm” window protecting the interior secondary window from the bad weather conditions. The descriptive word "secondary" provides a better description for homeowners and property owners to understand the descriptive word "storm".

The Window Industry has always used the descriptive word "panel" to refer to a "type" of window. A "panel" can be: a fixed or removable glazing panel with or without a main frame; a fixed or a removable panel with a main frame, or a panel in a frame with operable sash, such as in a horizontal sliding, vertical sliding or hinged window. Defining an entire window product group as "panel” will cause confusion, implying that only panel type windows are included in the definition. Rather than "panel,” the better descriptive word to use is "window.”

The descriptions “Secondary Window,” or "Secondary Glazing Window,” more clearly defines an additional window that is added to the primary window. This description can be used whether it is being installed to the exterior or the interior of the primary window. Therefore, we recommend the Product Definitions be changed to: 1. Exterior Secondary Window and 2. Interior Secondary Window.

We also recommend the words "securely and properly" be added in front to the word "installed" in the definition for 1. Exterior Secondary Window and 2. Interior Secondary Window, and the words "without the use of nails, screws, or adhesives" be deleted for the description of 2. Interior Secondary Window. Both Exterior and Interior Secondary Windows are subject to structural performance requirements, which vary by geographic location, the type and size of the window unit and the type and thickness of the glazing.

To prevent injuries, especially when a secondary window is installed to the interior of the primary window and can fall on homeowners and their guests, the use of screws to securely and properly anchor a secondary window are necessary. The weight of a glass panel in a secondary window installed to the interior of a large fixed window, such as a "picture" window in a living room, or the total weight of a large vertical sliding or horizontal sliding window, can be over 100 lbs. To reduce the risk of accidents, a secondary window, whether installed to the exterior or the interior, must be securely anchored into the existing construction for the safety of building occupants. Therefore, we request the definition for both Exterior and Interior Secondary Windows include "the secondary window unit be securely anchored with screws and fasteners per the manufacturer’s recommended installation procedures".

We also recommend the types of products listed under "4. Operator type" be changed: a. Fixed Panels, b. Removable panels, c. Vertical sliding (double-hung), d. Horizontal sliding (slider or glider), e. Hinged (casement, awning and hopper). These descriptions better define the types of windows used to describe the types of fenestration (window) products.

Proposed Performance Metric Definitions:

We recommend the definition for "11. Air Leakage (AL)" be changed to read: "The volume of air flowing (cfm/ft^2) per the area of a fixed window unit and per lineal feet of operable crack perimeter." This metric is included in ASTM E283– 04. (3. Terminology – 3.2.1 air leakage rate; and 12. Calculation – 12.3 "Calculate the rate of air leakage for the test specimen according to 12.3.1" (per unit of length of operable crack perimeter) "and 12.3.2" (rate of air leakage per unit area.)

Proposed Scope:

We would like more information as to what is the purpose or intent in the definition of "a. Purpose" to include the wording "feature proprietary technologies"? Would this include not permitting features a manufacturer has patented? Will this discourage or penalize a manufacturer from investing and incorporating new technologies through their research and development?

Proposed Excluded Products:

We recommend an item be added that will exclude the use of any exterior or interior secondary window used for residential applications that does meet the minimum Residential Performance Class 15 for Uniform Structural Load. A fallacy exists that interior secondary windows are not subject to the same wind loads as primary windows. The fact is, secondary windows installed to the interior of any operable primary window is subject to wind pressure and structural loading. During storms and bad weather (wind, rain, etc.), it is very common for homeowners to close their sash or panels in their interior secondary windows and leave their sash or panels in their primary windows open, which results in the interior secondary window being subject to the full force of the wind pressure.

As we pointed out earlier, it is critical an interior secondary window is securely anchored. A system relying only on compression, magnets, Velcro or adhesives to secure part or all of an assembled interior secondary window should be excluded for safety reasons. Without prior testing, the amount of air leakage through the existing primary window is not known, and therefore it should not be assumed the components in a secondary window installed to the interior of a primary window will not be subject to infiltration and exfiltration wind pressures.

Proposed Qulaification Criteria:

Our experience has found secondary windows, or "storm" windows, have historically been considered high performance if their maximum allowable air leakage (both infiltration and exflitration) at 75 Pa (1.57 psf,) is:

* 0.15 cfm / lineal ft crack perimeter for fixed or removable panel windows, or
* 0.50 cfm / lineal ft crack perimeter for operable windows

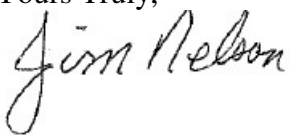
We recommend these minimum standards for allowable air leakage with the weep holes open, NOT sealed, during air testing. This is implied in ASTM E283, in Section 11 Procedure - 11.1. Since weeps are essential for exterior secondary windows, the proposed specifications should clearly spell out the requirement for weeps to remain open during testing.

ASTM E283 is the Industry Standard Test Method for window and door products, and 75 Pa is the standard test pressure for product comparisons. Using alternative test methods or a lower test pressure would create deceptive ratings for consumers and confusion for architects, specifiers and Independent Test Labs. This was questioned during the webinar on January 14, 2016, and the moderator's response that 75 Pa is the standard test pressure for air leakage testing is correct.

Again, we sincerely appreciate the interest and efforts of Energy Star to develop certification standards and procedures for secondary windows. We thank you for the opportunity to provide some of our comments and recommendations. Mon-Ray, Inc. looks forward to continued participation in providing you with additional information and answers to your questions regarding secondary windows.

Please do not hesitate to contact me if you have any questions on our comments or if you require any additional information. My cell number is (612) 270-5022, and my e-mail is jnelson@monray.com

Yours Truly,



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Product Sales and Development