

November 18th, 2011.

U.S. Environmental Protection Agency
ENERGY STAR Program
1200 Pennsylvania Ave NW
Washington, DC 20460
windows@energystar.gov

Re: ENERGY STAR Windows, Doors, and Skylights Specification Version 6.0 Revision

Dear Sir:

Established in 1943 specifically to explore and develop the potential of silicones, Dow Corning Corporation (dowcorning.com) provides performance-enhancing solutions to serve the diverse needs of more than 25,000 customers worldwide.

A global leader in silicones, silicon-based technology and innovation, Dow Corning offers more than 7,000 products and services via its Dow Corning and XIAMETER® brands. The commercial brand family includes a wide range of industry solutions, including the market for Windows, Doors and Skylights. Dow Corning is a joint venture equally owned by The Dow Chemical Company and Corning, Incorporated.

As stakeholder to this particular Energy Star (ES) program, Dow Corning has established solid track record with proven performance materials, along with knowledge from the field, and business acumen that allow us to provide the following comments about the proposed ES Framework Document revision.

Sincerely,

Saulo Rozendo
Building Codes and Regulations Manager, Americas
Dow Corning Corporation

ENERGY STAR® for Windows, Doors, and Skylights
Version 6.0 Product Specification Framework Document
Comments from Dow Corning Corporation

II. Program Elements Considered for Adoption

a. Structural Requirements

These are requirements that do not translate in immediate benefit to energy star principles and overall intent – to recognize products that are best recommended for its environmental stewardship.

Other groups and organizations would be better suited for structural requirements, such as ASTM and UL Environment partnership, or AAMA and WDMA programs.

At Dow Corning, we keep a stringent procedure for compliance of our silicone sealants against structural performance standards, such as ASTM C1184. For application of silicone sealants in commercial windows and doors, Dow Corning provides structural sealing testing results, detailed reviews and technical warranties.

b. Products Installed at High-Altitude

No input at this moment.

c. Impact-Resistant Products

These are requirements that do not translate in immediate benefit to energy star principles and overall intent – to recognize products that are best recommended for its environmental stewardship.

Other groups and organizations would be better suited for impact-resistant products, such as ASTM and UL Environment partnership, or AAMA and WDMA programs.

At Dow Corning, we have a selected team to address concerns about natural hazards for building envelope design, resulting in a new generation of high performance sealants. Many projects have already been using this solution in North America.

d. Daylighting

This topic represents a very important aspect of high performance green buildings in North America for many reasons. At Dow Corning, we believe daylighting indicators should be required for ES rating.

Façade systems are getting more complex on every new project in North America, and it is up to the entire design team to understand the properties of building materials, in which case Visible Transmittance (VT) rating is essential, along with existing ES requirements.

Thanks to technical standards such as ASHRAE 90.1 and green building rating systems such as LEED, architects and façade engineers are using VT ratings to specify glass and determine future energy efficiency.

At Dow Corning, we believe that upcoming technologies for insulation in glass façades will improve U-value and deliver daylighting benefits for occupants, while it may or may not affect VT rating. In this scenario, glare control may be a better indicator to consider.

This is also very consistent with the current discussion about indoor lighting technologies, in which case systems are designed to provide the right balance of daylight, artificial light and glare control.

Energy Star can play a very important role in this scenario, providing additional support to glare control technologies that would both enable energy efficiency and occupant health and safety.

e. Lifecycle Analysis

At Dow Corning, we believe that the EPA is absolutely correct to include a Life Cycle Assessment (LCA) requirement to Energy Star. Moreover, we encourage the EPA to defend a structure of Product Category Rule (PCR) that would outline the framework by which companies like Dow Corning and our customers would use to prepare their own Environmental Product Declarations (EPD). Until this framework does exist, there will not be sufficient data to establish an “apples-to-apples” comparison that would ultimately help architects and households to select better windows and doors.

There are great examples of PCRs and EPDs in other markets. For example, in Germany the *Institut Bauen und Umwelt e.V.* (IBU) developed Product Category Rules for many building products such as roofing and façades, and most prominent manufacturers are already listed with their third-party certified EPDs.

In France there is a public database of EPDs called INIES and there is also software called ELODIE to help designers identify most suitable building materials according to their life cycle profile. AFNOR is the standardization body in France and NF-P01-00 Standard creates the framework for all Product Category Rules.

In the United States there is no such framework of PCRs by which EPDs can be generated, and most importantly, compared. The existing approach of Input-Output, suggested by CSBR, is not comprehensive enough to address building materials complexity, especially windows and doors, and does not encompass the growing demand for LCA specification (such as net zero energy, http://www.whitehouse.gov/the_press_office/President-Obama-signs-an-Executive-Order-Focused-on-Federal-Leadership-in-Environmental-Energy-and-Economic-Performance) and industry-wide GHG targets (such as Architecture 2030, http://www.architecture2030.org/2030_challenge/the_2030_challenge).

There are clear benefits of using EPDs to communicate the environmental profile of building materials and systems: better informed decisions in building design, more productive work at job sites, and lower carbon footprint during operations and maintenance. But it is very important for Energy Star to make a clear distinction between EPD disclosure and full

declaration of product formulation; the latter would jeopardize any company's competitive advantage and intellectual property.

Life Cycle Assessment (LCA) can also be used as a tool to evaluate the environmental profile of an entire building. Not only would LCA look at the energy used in making a window, door or skylight, but it should also address the impact on overall building performance. For example, some materials that consume energy in the manufacturing process allow for 100 times energy savings when used in the building for 20+ years. Their impact on the overall energy performance of the building is positive and significant.

III. Program Elements Remaining Unchanged

No input at this moment.

IV. New Additions to Program Requirements

a. Air leakage

For decades, Dow Corning has provided silicone sealants to the window and door market with the precise benefit of preventing air leakage and de facto contributing to energy efficient building envelopes.

By preventing air and water infiltration in buildings, Dow Corning established its credentials to the market, along with a landscape of patents and technical expertise in institutions such as ASTM, AAMA, IGMA and WDMA. Most importantly, when Dow Corning introduces new sealants for window and door applications, we strengthen our commitment to an industry that continuously demands durability, safety and high quality.

Therefore, we commend Energy Star for introducing air leakage as an important topic for the industry and we are able to support this with our technical expertise and global resources.

When we look at our customer base in North America, a significant portion (approximately 60%) is already performing air leakage testing. That is because one of the main benefits of

silicone sealants is air tightness of windows and doors, and we have been leaders in this market for more than 40 years.

Windows are faced with more and more complex designs and technical challenges: energy efficiency, occupant comfort, safety, aesthetics, ergonomics, carbon footprint, durability. If we leave air tightness out of this list, then energy efficiency and all the other concerns may not be fully addressed, leaving room for debate whether ES is the best-in-class label to represent green materials.

Properly sealed windows and doors should be part of the requirements for any serious company in this business and they should all be able to meet this proposed criterion. Quality should also be present during installation, in which case air tightness could be subject to testing and design validation. Failure to do so does not represent a failure in the ES program but ultimately a failure to provide the market with good products.

Air leakage results should be readily available to the public, in the process of making better informed decisions about product specification. By adding this feature to the program, ES is stimulating a technical competition which benefits end users and customers. Most of our customers' products are listed on CPD.

b. Installation instructions

No input at this moment.

V. Proposed Revisions to Product Criteria

No input at this moment.