



December 5, 2017

Via Email Only

Ann Bailey
Office of Air and Radiation
U.S. Environmental Protection Agency
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RE: EPA Stakeholder Invitation for ENERGY STAR® Feedback

Dear Ms. Bailey:

This letter responds to the United States Environmental Protection Agency's (EPA) November 20, 2017 invitation for feedback from ENERGY STAR® stakeholders regarding the ENERGY STAR program. Consistent with this, Section 3(a) of EO 13777 has recently directed EPA, through its Regulatory Reform Task Force (Task Force), to evaluate existing regulations and "make recommendations to the agency head regarding their repeal, replacement, or modification." The EO further directs the Task Force to seek input and assistance from entities significantly affected by existing regulations, particularly based on several assessment factors, including, but not limited to, whether the regulations are: (1) "outdated, unnecessary, or ineffective"; (2) "impose costs that exceed benefits"; or (3) "create a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies."

MI Windows and Doors, LLC (MI) is an ENERGY STAR Partner that has been manufacturing windows and doors in the United States for decades. MI is proud to carry the ENERGY STAR label on many of its products. We support the EPA's goal of increasing transparency in the ENERGY STAR program. Our comments are focused on an element of the Energy Star verification program as applied to windows and doors which was not subject open stakeholder dialogue prior to its implementation.

EPA Directive No. 2011-04, along with EPA Directive No. 2011-06, establishes procedures by which third-party certification bodies test ENERGY STAR-qualified products to verify continued compliance with performance requirements. MI requests that the EPA reform Directive No. 2011-04 which as written provides for a single verification test failure to form the basis for disqualification of an entire fenestration product line ("one-strike"), irrespective of prior testing history, additional post-failure testing or the dramatic statistical insignificance of a single product test result when applied to thousands of existing units in the field. This situation fails to address reasonably ENERGY STAR-stated objectives and unduly burdens the fenestration industry and its consumers.

MI proposes reformation of the process to require, or permit at the request of the Participant, additional testing to be promptly performed in response to an initial failure, with a concurrent consideration of the product testing record (i.e. all current and prior test results), before initiation of the process for disqualification of the relevant product line is authorized. The "one-strike" test paradigm



currently used is not designed to include the existing record of qualification, current and historical, which can reflect years of positive results justifying ENERGY STAR qualification. This does not assure that the best performing products overall maintain the ENERGY STAR label, but rather promotes decision-making without reliance on already available or easily obtainable relevant information.

An existing alternative is found in verification testing of ENERGY STAR product categories subject to DOE verification testing, such as in the Appliance and Equipment Standards Program, which have never been subject to disqualification based upon a single testing failure. Instead, in the event of an initial testing failure, multiple additional units are tested and the overall results are quantified before a disqualification decision is authorized.

The relevant EPA Directives were developed as part of a comprehensive overhaul of ENERGY STAR testing, qualification and verification to promote the reliability of the ENERGY STAR Program and improve customer reaction to the ENERGY STAR brand. While the broader goal is certainly supported, the approach to fenestration products detailed in Directive 2011-04 places too high of a burden on both fenestration manufacturers and consumers. It is inconsistent with both the overall goals of the ENERGY STAR Program and the more sensible procedures used by the parallel "multi-test" DOE program. Further, these requirements unnecessarily risk disqualifying compliant products from the Program based upon a single and potentially unrepresentative testing result, needlessly limiting consumer choice.

While ENERGY STAR does currently address a contest of disqualification, the prescribed process is ill-defined and the manufacturer cannot fairly be expected to meet the burden to prove that the failed test was conducted in error. Because the manufacturer is prohibited from being present when third-party laboratory verification testing is to be performed and is unable to re-test the failed unit due to dismantling at the end of the initial test, it is impractical if not impossible, to prove whether the laboratory erred in its conduct of the single test or whether the sample was damaged prior to or during testing.

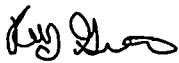
It is important to develop a fair threshold for disqualification. A single, unrepresentative testing failure can cause disqualification and the ramifications to the manufacturer are immediate and severe. Disqualification can subject the manufacturer to several significant legal and business risks, including a dramatic loss of market share, related employment and exposure to litigation from intermediate resellers, builders and homeowners.

Given the recognized potential for testing error, known variability of test results, and the significant legal and business risks associated with disqualification, it is reasonable to request that the EPA reconsider the current "one-strike" testing policy for the Windows, Doors and Skylights category and replace it with a policy that better balances all interests involved. This will be advanced by:

- Harmonizing the verification testing for product categories to allow the testing of an additional three or four fenestration units and formulaic averaging of all subsequent results in the event of an initial failure. This ensures a much more representative sample of the tested product, of which there might be many thousands, installed in the field.
- Allowing for manufacturer attendance at testing and a confirmatory second round of testing test by right. Upon a failed test of an initial unit, a manufacturer would be provided the opportunity to have additional testing, even if at its own expense. If the subsequent tests are passed, the Certification Body would not report an unsuccessful test to the EPA. This approach would better protect against fluke disqualifications based on a single test.

In the interest of the fenestration industry, its customers, and fellow voluntary participants in the ENERGY STAR Program, the EPA should consider these options in its effort to refine the program. The hard work of the agency and this opportunity to provide comment is greatly appreciated. Further information or insight into the recommendations will be provided upon request.

Sincerely,



Ray Garries



THIRD PARTY CERTIFICATION IMPLEMENTATION
ENERGY STAR® PRODUCTS

SUBJECT: ENERGY STAR Verification Testing for Certification Bodies -
Test Sample Sizes and Determining Testing Failures (Non-Lighting Products)

DIRECTIVE NO. 2011-04

Date: 5/09/2011

Introduction

The third-party certification requirements put in place by the U.S. Environmental Protection Agency (EPA) for ENERGY STAR products include provisions for verifying the performance of qualified products through verification and challenge testing. In conjunction with the verification program being run by certification bodies (CBs), The U.S. Department of Energy (DOE) intends to continue to operate a parallel, targeted verification testing program for ENERGY STAR products that also evaluates how models comply with Federal energy conservation standards. More information on DOE's program is available at http://www1.eere.energy.gov/buildings/appliance_standards/.

Consumers who rely on the ENERGY STAR label in making a purchase decision expect that the unit they purchase will meet ENERGY STAR requirements. EPA has traditionally established program testing requirements with the intention of fulfilling that consumer expectation and ensuring that all units of a qualified model, irrespective of manufacturing and testing variability, meet the ENERGY STAR performance requirements. For certain product categories currently subject to Federal energy conservation standards, the ENERGY STAR specification has allowed for testing consistent with DOE standards, which require testing a sample comprised of no less than two units, and using statistical methods to determine the certified rating of each basic model. Recognizing this variation in sample size approach for qualification, EPA and DOE require that products be tested for purposes of verification consistent with how they were tested for purposes of qualification using one of the following approaches:

1. If a product was qualified based on a single test, which ENERGY STAR specifications require for products not subject to Federal energy conservation standards, then verification testing will involve a single test.¹
2. If a product was qualified based on multiple test samples, (e.g., per DOE certification sampling plan associated with Federal energy conservation standards²), then four units will be procured at once for verification testing. A spot check will be performed on the first unit. If the test result of the spot check fails by 5% or more, the additional 3 units will be tested and statistical methods applied to the results for purposes of determining a failure.

Testing failures will be referred to EPA for further consideration and a final determination regarding ENERGY STAR compliance. Testing failures that indicate a potential issue with respect to Federal energy conservation standards will be referred to DOE for further testing consistent with DOE's sampling plans for enforcement testing of products as outlined in 10 CFR Part 429.

¹Approach 1 will apply if multiple tests are required to determine qualification, but all units must individually meet the ENERGY STAR requirements (e.g., displays, imaging equipment).

² Approach 2 may also apply to products not subject to Federal energy conservation standards if the ENERGY STAR specification allows for and the manufacturer chooses to qualify a product based on a statistical combination of tests on multiple units.

Determination of Testing Failure for the ENERGY STAR Verification Program

The following approaches will be applied by DOE and CBs when conducting verification testing of ENERGY STAR products, depending on how the product was originally qualified.

Approach 1: Manufacturer qualifies product for ENERGY STAR based on one representative model

One unit will be selected, obtained, and tested. Consistent with requirements for ENERGY STAR qualification, the measured performance must be equal to or better than the ENERGY STAR specification requirements.

$$Consumption_{Test} \leq ESTAR \text{ consumption specification}$$

$$Efficiency_{Test} \geq ESTAR \text{ efficiency specification}$$

Approach 2: Manufacturer qualifies product for ENERGY STAR based on multiple test samples

Four units will be selected and obtained at once. One unit will initially be tested for a spot check. If the tested unit fails to meet the requirement by less than 5% of the applicable ENERGY STAR specification, no further tests will be conducted and the model will be considered to meet ENERGY STAR requirements. If the measured performance is not within this range, the three additional units will be tested immediately. In this case, manufacturers shall not be notified of the spot check test results until all four units are tested, at which time a testing failure can be determined.

Test results from the four units will be used to determine if the model meets the ENERGY STAR specification. DOE may also use these results for evaluation of compliance with Federal energy conservation standards.

The following will be calculated on the sample of four units:

Mean (x)	$x = \frac{1}{n} \left(\sum_{i=1}^n x_i \right)$	$n = 4$ (number of units tested) X_i = measured energy efficiency or consumption from test i
Standard Deviation (s)	$s = \sqrt{\frac{\sum_{i=1}^n (x_i - x)^2}{n - 1}}$	
Standard Error (s_x)	$s_x = \frac{s}{\sqrt{n}}$	
Lower Confidence Limit (LCL)	$LCL = EES - ts_x$	EES = energy efficiency specification or standard $t = 3.182$ (97.5% one-sided student's t statistic for a sample size of 4)
Upper Confidence Limit (UCL)	$UCL = ECS + ts_x$	ECS = energy consumption specification or standard
5% tolerance on LCL	$LCL(0.05) = 0.95 * EES$	
5% tolerance on UCL	$UCL(0.05) = 1.05 * ECS$	

For an energy efficiency specification, the LCL and $LCL(0.05)$ are compared, and the greater value is compared to the mean (\bar{x}). The model meets the ENERGY STAR specification if the sample mean is equal to or greater than the lower control limit.

$$\text{Mean } (\bar{x}) \geq LCL \text{ or } LCL(0.05), \text{ whichever is greater}$$

For an energy consumption specification, the UCL and $UCL(0.05)$ are compared, and the smaller value is compared to the mean (\bar{x}). The model meets the ENERGY STAR specification if the sample mean is equal to or less than the upper control limit.

$$\text{Mean } (\bar{x}) \leq UCL \text{ or } UCL(0.05), \text{ whichever is smaller}$$

Consequences of Testing Failures

CBs are required to report testing failures to EPA within 2 days of determining a testing failure. EPA will then notify the manufacturer and provide 20 days for a written response. This may include the submission of additional relevant information to EPA. EPA will review submitted information from the manufacturer and determine if any additional evaluation is necessary. Where applicable, EPA will consult DOE regarding the appropriate application of test methods.

EPA will provide additional time to resolve questions of potential non-compliance as appropriate. If a decision is made to disqualify the product, the manufacturer will be required to discontinue labeling of the product and institute other corrective actions as directed by EPA.

Relationship to Enforcement of Federal energy conservation standards

If verification testing performed in support of the ENERGY STAR program suggests that a model is not compliant with Federal energy conservation standards, DOE will proceed in accordance with 10 CFR Part 429, as appropriate.

Relationship to Enforcement of DOE Certified Ratings

If verification testing performed in support of the ENERGY STAR program suggests that the test data do not support the DOE certified rating, DOE will proceed in accordance with 10 CFR Part 429, as appropriate.