

ENERGYSTAR Verification Program - Windows

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I would like to take this opportunity to applaud EPA/DOE for their diligence in strengthening the ENERGYSTAR program and assuring that consumers are provided with the energy savings which they expect. The ENERGYSTAR windows program has been very successful at driving innovation and significant energy savings in this product area. Using NFRC certified products provides a level of third-party independence to these ratings that is extremely valuable, and a solid system for product qualification.

With that said, the NFRC system does not provide a system that verifies product performance as delivered to the consumer. What it does provide is a theoretical performance value for a window product based on its physical characteristics: frame material and design, spacer type and insulated glass design. That value is based on a computer modeled rating value and represents the “design” performance of the product. Actually achieving that performance with a real unit is not solely dependent on the presence of those characteristics, but also in the quality and conditions present during manufacture.

NFRC participants who certify and label their products are required to produce a single specimen of each certified product line and that specimen must test to within +/-10% of the “design” performance value determined via computer simulation. Products which do not initially pass this test are examined to determine the source of error, normally a quality issue relating either to the documentation provided to the simulation lab to determine the ratings (i.e. incorrect drawing or product information) or insufficient quality in the construction of the unit (i.e. intended elements not present on the product). These errors are corrected and new ratings determined or new units constructed until the validation test criteria is met. This system is geared to approve the products and does not penalize anyone for the quality failures.

After initial approval, the next time that the product is physically tested is four years later when the product is recertified. In between, in-plant inspection of the manufacturers is performed on an annual basis to verify drawings and labels and to examine quality control procedures.

For a given product line, for example a double hung vinyl window, the manufacturer will have a variety of different ENERGYSTAR compliant models (representing different insulating glass or framing components) but only one of those models is physically tested. This one test may represent thousands of potential constructions, which may be subject to different potential quality problems.

In total, NFRC claims to list 1.67 million fenestration product options from over 700 manufacturers. Only a small portion of those units are subjected to physical testing to prove they deliver performance (roughly 500-1000 per year) and those are all manufactured specifically for the testing laboratory.

In order to provide value to this program, testing must be performed on a more regular basis, using randomly constructed samples, and the system must check more of the products. The failure of a unit for any reason, including mislabeling, should have consequences. The good intentions of the manufacturer do not substitute for quality and certainly do not repair the damages to a consumer who has received windows which consistently underperform.

Verifying that the correct components are in place via inspection does not in any way prove that the product will deliver the performance indicated on the label. The quality of the construction and invisible attributes, like low-e coatings and gas fillings, are the primary contributors to reduced product performance. As the products get better and better, the impact of problems with these elements becomes a much higher percentage of the performance. Some of the issues with these types of features can lower a product's performance by 10-25% or more. The only way to check if the product is actually delivering the advertised performance is via a physical test of the complete product.

I am fully supportive of allowing NFRC as an organization to work to develop a verification program; however, both the current qualification program and any future verification program must be focused on ensuring that the claimed performance values are achieved and delivered to the end user. This must be done in a direct manner, measuring actual values which are cited on labels, not through a surrogate check of features and inspection. The claims cannot be proven in any way except through actual test, and any attempts to create a program around this methodology will be fraught with inconsistencies and will allow many underperforming products to enter into service.

I would also like to propose that any potential SUPERSTAR products, should such a program come to fruition, be held to even higher levels of checking than standard ENERGYSTAR products. These will be premium products and should be held to premium standards.