BRADFORD WHITE
WATER HEATERS

May 16, 2011

Ms. Ashley Armstrong
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Building Technologies Program, EE-2J
1000 Independence Avenue SW
Washington, DC 20585-0121

Dear Ms. Armstrong:

On behalf of Bradford White Corporation, I would like to express our appreciation for the opportunity to comment on the DOE Verification Testing in support of the ENERGY STAR® program for water heaters. Please find the comments of Bradford White Corporation (BWC), below.

Bradford White Energy strongly urges DOE and the ENERGY STAR program to adopt a five (5) percent tolerance on all Energy Factor (EF) results, no matter the number of representative test samples. The experimental error associated with the water heater EF test protocol is in excess of 5% and is well documented. Further, since test water heaters are procured from sources outside the manufacturers' control, it is all too common for the water heaters to be mishandled prior to testing. Extreme temperature fluctuations in distributor shipment and storage, dents, damage, etc. all adversely affect test results and lead to erroneous testing

Adopting a zero tolerance is unsupported by technical analysis and, most importantly, will greatly deter manufacturers from participating in the ENERGY STAR program. In my opinion, the current tolerance will greatly reduce the number of high efficiency water heaters available to consumers. To comply with the verification testing requirements as currently written, the water heater industry would have to design and build water heaters to achieve no less than 6-8% (due to experimental plus test errors) higher efficiency than their ratings. Please note, BWC already rates our products lower than achieved test results to account for manufacturing variation. This additional requirement to assure compliance with a highly variable EF test protocol would then force gas water heaters to operate with the potential of unintended chimney system condensation. This is not only destructive to the venting system (requiring expensive consumer repairs) but may be potential dangerous.

Analysis of the experimental and test errors in the First Hour Supply (FHS) test procedure indicates a test tolerance of ten (10) percent is warranted. The FHS test procedure is tremendously variable and obtaining correct results is particularly susceptible to minute errors in the test set-up. Specifically, placement of the six sensor water temperature probe requires disassembly of the water heater. The temperature probe used in the testing fundamentally alters the performance of the water heater relative to FHS with placement errors of less than 1/8 inch, which can dramatically change FHS results.

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Bradford White believes that manufacturers should be consulted before, during, and after conducting a test. This should be a cooperative relationship with ENERGY STAR, not an adversarial one. Time and time again, test laboratories have improperly installed or operated water heater resulting in inaccurate results. The laboratories are generally very well qualified but do not understand or work with water heaters often enough to fully understand the ramifications of small errors in set-up or testing. Working in partnership with the manufacturer not only will guarantee more accurate test results, but will result in a more consistent and efficient verification system. No one understands the test set-up or test procedure better than the manufacturer. To ignore their expertise will benefit no one.

Bradford White Corporation thanks you for this opportunity to comment on DOE Verification Testing in support of the ENERGY STAR® program for water heaters. We urge the DOE to modify the testing pursuant to our comments.

Respectfully,

Bradford White Corporation

Michael W. Gordon
Senior Vice President, Engineering

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