



## **ABMA Impacts DOE Final Rule on Test Procedures for Commercial Packaged Boilers (CPB)**

On Friday October 21st, the Department of Energy (DOE) announced its Final Rule pertaining to the Test Procedures for Commercial Packaged Boilers (CPB). We are confident that ABMA members will be pleased by the results and agree that ABMA had significant impact on the final language. Below is the full analysis from Technical Director Geoff Halley.

The Final Rule contains numerous ABMA recommendations including the adoption of AHRI-1500 as the basis for the Test Procedure and allows for some flexibility with the testing process and requirements for larger CPB's.

ABMA appreciates DOE's effort to ensure that any test procedure for CPB's incorporates the latest industry standards and the test procedure is workable for all parts of this varied sector.

A big thank you to the companies in the Commercial Product Group, as we could not have been successful without their support and guidance throughout the process.

A link to the pre-publication version of the final rule is below along with a link to AHRI-1500 for your reference.

Key highlights include:

1. DOE is offering a few testing alternatives for larger CPB.
  - a. DOE has created an optional field test is allowed for boilers having a fuel input greater than 5,000,000 Btu/hr.
  - b. DOE agreed with ABMA's request to categorize tests performed in the manufacturer's fire test area as field tests, which means we do not have to comply with the ambient temperature and humidity requirements, but merely log the prevailing test conditions on the test report. All field tests are based on measurement of combustion efficiency, simplifying instrumentation and testing.
  - c. They re-emphasized the use of AEDM's once some basic test data has been obtained.
2. DOE decided against ABMA's recommendation and kept the difference between combustion efficiency and thermal efficiency at 2% rather than the manufacturers actual radiation loss data.
3. Field constructed boilers such as the so-called "pork chop" firetube boilers developed for big cities such New York City by such companies as Easco and Rockmills are exempted. DOE has been quite specific in their language, that welding has to be performed in the field construction, essentially eliminating sectional cast iron boilers and flextube boilers from this exemption.

4. The maximum fuel input used for basic model undergoing the DOE test should be the same as that used for the safety certification (UL) test and also the Manufacturer's literature.
5. Hot water boilers are to be tested at 140 degrees F inlet temperature and 180 degrees F outlet temperature, which in my opinion, means that testing may be performed without the need for a recirculating loop.
6. Digital data acquisition is required for all temperatures only. Given the short time interval between data points required, this makes some sense. Care should be taken to ensure that the data acquisition equipment is capable of providing the required level of accuracy.
7. There will be no part load efficiency testing.
8. Oxygen stack analyzers are an acceptable alternative to CO2 analyzers. This simplifies calibration and the cost of having to use a calibration gas.
9. For boilers that may be used with different burners (having the same capacity), any one of these burners may be used for the efficiency test.
10. The ABMA membership should very carefully study pages 116 through 160 of the Test Procedure document to determine the impact on their company.
  - a. Testing requirements are shown in tabular form on page 129.
  - b. Minimum efficiency requirements are shown in tabular form on page 130. Note that hot water boiler efficiency is a combustion efficiency, whereas steam boiler efficiency is a thermal efficiency.
  - c. Details of the thermal efficiency test procedure are shown starting on page 133.
  - d. Details of the combustion efficiency test procedure are shown starting on page 148.
  - e. Additional requirements for field testing are shown on page 153.
11. DOE has chosen not to publish the entire test procedure in this document, instead they have defined which paragraphs of AHRI 1500-2015 do not apply, as they have been superseded by DOE language designed to accommodate the field testing of large boilers. It is rather cumbersome to follow, but this seems to be the intent.
12. Straight vent stacks are allowed in lieu of the double elbow style required in AHRI 1500-2015.

In conclusion, ABMA accomplished our goal by educating DOE on the unique features for the upper-end of the Commercial Packaged Boilers (CPBs) resulting in Test Procedure Final Rule that is workable for ABMA members and gets our companies in compliance with DOE regulations.

[Click Here to Download the Final Rule](#)

[Click Here to Download AHRI-1500](#)

For additional comments or questions, please contact Scott Lynch at [scott@abma.com](mailto:scott@abma.com).