Calculate a weighted saturated evaporator temperature for the entire case by:

(A) Multiplying the saturated evaporator temperature of each compartment by the volume of that compartment (as measured in ARI Standard 1200–2006),

(B) Summing the resulting values for all compartments, and

(C) Dividing the resulting total by the total volume of all compartments.

Calculate the CEC for the entire case using Table 1 in ARI Standard 1200–2006 (incorporated by reference, see § 431.63), using the total refrigeration load and the weighted average saturated evaporator temperature. The CDEC for the entire case shall be the sum of the CEC, FEC, LEC, AEC, DEC, and PEC.

(iii) For self-contained commercial hybrid refrigerators, hybrid freezers, hybrid refrigerator-freezers, and non-hybrid refrigerator-freezers, measure the TDEC for the entire case according to the ARI Standard 1200–2006 test procedure (incorporated by reference, see § 431.63).

(3) For remote-condensing and self-contained wedge cases, measure the CDEC or TDEC according to the ARI Standard 1200–2006 test procedure (incorporated by reference, see § 431.63). The MDEC for each model shall be the amount derived by incorporating into the standards equation in paragraph (d)(1) of this section for the appropriate equipment class a value for the TDA that is the product of:

(i) The vertical height of the air-curtain (or glass in a transparent door) and (ii) The largest overall width of the case, when viewed from the front.

[70 FR 60414, Oct. 18, 2005, as amended at 74 FR 1140, Jan. 9, 2009]

Subpart D—Commercial Warm Air Furnaces

SOURCE: 69 FR 61939, Oct. 21, 2004, unless otherwise noted.

§ 431.71 Purpose and scope.

This subpart contains energy conservation requirements for commercial warm air furnaces, pursuant to Part C of Title III of the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6311–6317.

[69 FR 61939, Oct. 21, 2004, as amended at 70 FR 60415, Oct. 18, 2005]

§ 431.72 Definitions concerning commercial warm air furnaces.

The following definitions apply for purposes of this subpart D, and of subparts J through M of this part. Any words or terms not defined in this Section or elsewhere in this Part shall be defined as provided in Section 340 of the Act.

Commercial warm air furnace means a warm air furnace that is industrial equipment, and that has a capacity (rated maximum input) of 225,000 Btu per hour or more.

Thermal efficiency for a commercial warm air furnace equals 100 percent minus percent flue loss determined using test procedures prescribed under § 431.76.

Warm air furnace means a self-contained oil-fired or gas-fired furnace designed to supply heated air through ducts to spaces that require it and includes combination warm air furnace/electric air conditioning units but does not include unit heaters and duct furnaces.

TEST PROCEDURES

§ 431.75 Materials incorporated by reference.

(a) We incorporate by reference the following test procedures into subpart D of Part 431. The Director of the Federal Register has approved the material listed in paragraph (b) of this section for incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR 51. Any subsequent amendment to this material by the standard-setting organization will not affect the DOE test procedures unless and until DOE amends its test procedures. We incorporate the material as it exists on the date of the approval and a notice of any change in the material will be published in the FEDERAL REGISTER.

(b) *List of test procedures incorporated by reference.* (1) American National Standards Institute (ANSI) Standard Z21.47–1998, ''Gas-Fired Central Furnaces,'' IBR approved for § 431.76.

(2) Underwriters Laboratories (UL) Standard 727–1994, ''Standard for Safety Oil-Fired Central Furnaces,'' IBR approved for § 431.76.

(3) Sections 8.2.2, 11.1.4, 11.1.5, and 11.1.6.2 of the Hydronics Institute (HI) Division of GAMA Boiler Testing Standard BTS–2000, ''Method to Determine Efficiency of Commercial Space Heating Boilers,'' published January 2001 (HI BTS–2000), IBR approved for § 431.76.

(4) Sections 7.2.2.4, 7.8, 9.2, and 11.3.7 of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) Standard 103–1993, '' Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers,'' IBR approved for § 431.76.

(c) *Availability of references*—(1) *Inspection of test procedures.* The test procedures incorporated by reference are available for inspection at:

(i) National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741–6030, or go to: *http://www.archives.gov/federal__register/code__of__federal__regulations/ibr__locations.html.*

(ii) U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Hearings and Dockets, ''Test Procedures and Efficiency Standards for Commercial Warm Air Furnaces; Efficiency Certification, Compliance, and Enforcement Requirements for Commercial Heating, Air Conditioning and Water Heating Equipment;'' Docket No. EE–RM/TP–99–450, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585.

(2) *Obtaining copies of Standards.* Anyone can purchase a copy of standards incorporated by reference from the following sources:

(i) The ASHRAE Standard from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 1971 Tullie Circle, NE., Atlanta, GA 30329, or *http://www.ashrae.org/book/bookshop.htm.*

(ii) The ANSI Standard from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112, or *http://global.ihs.com/*, or *http://webstore.ansi.org/ansidocstore/.*

(iii) The UL Standard from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112, or *http://global.ihs.com/.*

(iv) The HI Standard from the Hydronics Institute Division of GAMA, P.O. Box 218, Berkeley Heights, NJ 07922, or *http://www.gamanet.org/publist/hydroordr.htm.*

§ 431.76 Uniform test method for the measurement of energy efficiency of commercial warm air furnaces.

(a) This Section covers the test procedures you must follow if, pursuant to EPCA, you are measuring the steady state thermal efficiency of a gas-fired or oil-fired commercial warm air furnace with a rated maximum input of 225,000 Btu per hour or more. Where this Section prescribes use of ANSI standard Z21.47–1998 or UL standard 727–1994, (Incorporated by reference, see § 431.75), perform only the procedures pertinent to the measurement of the steady-state efficiency.

(b) *Test setup*—(1) *Test setup for gas-fired commercial warm air furnaces.* The test setup, including flue requirement, instrumentation, test conditions, and measurements for determining thermal efficiency is as specified in sections 1.1 (Scope), 2.1 (General), 2.2 (Basic Test Arrangements), 2.3 (Test Ducts and Plenums), 2.4 (Test Gases), 2.5 (Test Pressures and Burner Adjustments), 2.6 (Static Pressure and Air Flow Adjustments), 2.38 (Thermal Efficiency), and 4.2.1 (Basic Test Arrangements for Direct Vent Control Furnaces) of the ANSI Standard Z21.47–1998. The thermal efficiency test must be conducted only at the normal inlet test pressure, as specified in Section 2.5.1 of ANSI Standard Z21.47–1998, (Incorporated by reference, see § 431.75), and at the maximum hourly Btu input rating specified by the manufacturer for the product being tested.

(2) *Test setup for oil-fired commercial warm air furnaces.* The test setup, including flue requirement, instrumentation, test condition, and measurement for measuring thermal efficiency is as specified in sections 1 (Scope), 2 (Units of Measurement), 3 (Glossary), 37 (General), 38 and 39 (Test Installation), 40 (Instrumentation, except 40.4 and 40.6.2 through 40.6.7, which are not required