

## Department of Energy

## § 433.5

consumed maintaining comfort and amenities for the occupants of the building (including space conditioning for human comfort).

*Proposed building* means the building design of a new Federal commercial and multi-family high-rise building proposed for construction.

*Receptacle load* means the load on a building resulting from energy consumed by any equipment plugged into electrical outlets.

[71 FR 70281, Dec. 4, 2006, as amended at 72 FR 72570, Dec. 21, 2007]

### § 433.3 Materials incorporated by reference.

(a) *General.* DOE incorporates by reference the energy performance standard listed in paragraph (b) of this section into 10 CFR part 433. 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 part 51. Any subsequent amendment to this material by the standard-setting organization will not affect the DOE building energy performance standard unless and until DOE amends its building energy performance standards. DOE incorporates the material as it exists on the date specified in the approval and a notice of any change in the material will be published in the FEDERAL REGISTER.

(b) *List of standards incorporated by reference.* ANSI/ASHRAE/IESNA Standard 90.1-2004, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, January 2004, American Society of Heating Refrigerating and Air-Conditioning Engineers, Inc., ISSN 1041-2336.

(c) *Availability of references.* The building energy performance standard incorporated by reference is available for inspection at:

(1) 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](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html)

(2) U.S. Department of Energy, Forrestal Building, Room 1M-048 (Resource Room of the Federal Energy Management Program), 1000 Independ-

ence Avenue, SW., Washington, DC 20585-0121, (202) 586-9138, between 9 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

(d) *Obtaining copies of standards.* The building energy performance standard incorporated by reference may be obtained from the American Society of Heating Refrigerating and Air-Conditioning Engineers, 1791 Tullie Circle, NE., Atlanta, GA, 30329, <http://resourcecenter.ashrae.org/store/ashrae/>.

### § 433.4 Energy efficiency performance standard.

(a) All Federal agencies shall design new Federal commercial and multi-family high-rise residential buildings, for which design for construction began on or after January 3, 2007, to:

(1) Meet ANSI/ASHRAE/IESNA Standard 90.1-2004, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, January 2004 (incorporated by reference, see 433.3); and

(2) If life-cycle cost-effective, achieve energy consumption levels, calculated consistent with paragraph (b) of this section, that are at least 30 percent below the levels of the baseline building.

(b) Energy consumption for the purposes of calculating the 30 percent savings shall include space heating, space cooling, ventilation, service water heating, lighting and all other energy consuming systems normally specified as part of the building design except for receptacle and process loads.

(c) If a 30 percent reduction is not life-cycle cost-effective, the design of the proposed building shall be modified so as to achieve an energy consumption level at or better than the maximum level of energy efficiency that is life-cycle cost-effective, but at a minimum complies with paragraph (a) of this section.

[71 FR 70281, Dec. 4, 2006, as amended at 72 FR 72570, Dec. 21, 2007]

### § 433.5 Performance level determination.

(a) Each Federal agency shall determine energy consumption levels for both the baseline building and proposed building by using the Performance Rating Method found in Appendix G of ANSI/ASHRAE/IESNA Standard 90.1-2004,

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*Energy Standard for Buildings Except Low-Rise Residential Buildings*, January 2004 (incorporated by reference, see ( 433.3), except the formula for calculating the Performance Rating in paragraph G1.2 shall read as follows:

Percentage improvement = 100 x (Baseline building consumption—Proposed building consumption)/ (Baseline building consumption—Receptacle and process loads).

(b) Each Federal agency shall consider laboratory fume hoods and kitchen ventilation systems as part of the ASHRAE-covered HVAC loads subject to the 30 percent savings requirements, rather than as process loads.

**§ 433.6 Sustainable principles for siting, design and construction. [Reserved]**

**§ 433.7 Water used to achieve energy efficiency. [Reserved]**

**§ 433.8 Life-cycle costing.**

Each Federal agency shall determine life-cycle cost-effectiveness by using the procedures set out in subpart A of part 436. A Federal agency may choose to use any of four methods, including lower life-cycle costs, positive net savings, savings-to-investment ratio that is estimated to be greater than one, and an adjusted internal rate of return that is estimated to be greater than the discount rate as listed in OMB Circular Number A-94 “Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs.”

**PART 434—ENERGY CODE FOR NEW FEDERAL COMMERCIAL AND MULTI-FAMILY HIGH RISE RESIDENTIAL BUILDINGS**

Sec.  
434.99 Explanation of numbering system for codes.

**Subpart A—Administration and Enforcement—General**

- 434.100 Purpose.
- 434.101 Scope.
- 434.102 Compliance.
- 434.103 Referenced standards (RS).
- 434.105 Materials and equipment.

**Subpart B—Definitions**

- 434.201 Definitions.

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**Subpart C—Design Conditions**

- 434.301 Design criteria.

**Subpart D—Building Design Requirements—Electric Systems and Equipment**

- 434.401 Electrical power and lighting systems.
- 434.402 Building envelope assemblies and materials.
- 434.403 Building mechanical systems and equipment.
- 434.404 Building service systems and equipment.

**Subpart E—Building Energy Cost Compliance Alternative**

- 434.501 General.
- 434.502 Determination of the annual energy cost budget.
- 434.503 Prototype building procedure.
- 434.504 Use of the prototype building to determine the energy cost budget.
- 434.505 Reference building method.
- 434.506 Use of the reference building to determine the energy cost budget.
- 434.507 Calculation procedure and simulation tool.
- 434.508 Determination of the design energy consumption and design energy cost.
- 434.509 Compliance.
- 434.510 Standard calculation procedure.
- 434.511 Orientation and shape.
- 434.512 Internal loads.
- 434.513 Occupancy.
- 434.514 Lighting.
- 434.515 Receptacles.
- 434.516 Building exterior envelope.
- 434.517 HVAC systems and equipment.
- 434.518 Service water heating.
- 434.519 Controls.
- 434.520 Speculative buildings.
- 434.521 The simulation tool.

**Subpart F—Building Energy Compliance Alternative**

- 434.601 General.
- 434.602 Determination of the annual energy budget.
- 434.603 Determination of the design energy use.
- 434.604 Compliance.
- 434.605 Standard calculation procedure.
- 434.606 Simulation tool.
- 434.607 Life cycle cost analysis criteria.

**Subpart G—Reference Standards**

- 434.701 General.

AUTHORITY: 42 U.S.C. 6831–6832, 6834–6836; 42 U.S.C. 8253–54; 42 U.S.C. 7101, *et seq.*

SOURCE: 65 FR 60012, Oct. 6, 2000, unless otherwise noted.