Design for construction means the stage when the energy efficiency and sustainability details (such as insulation levels, HVAC systems, water-using systems, etc.) are either explicitly determined or implicitly included in a project cost specification.

DOE means the U.S. Department of Energy.


IESNA means Illuminating Engineering Society of North America.

Life-cycle cost means the total cost related to energy conservation measures of owning, operating and maintaining a building over its useful life as determined in accordance with 10 CFR part 436.

Life-cycle cost-effective means that the proposed building has a lower life-cycle cost than the life-cycle costs of the baseline building, as described by 10 CFR 436.19, or has a positive estimated net savings, as described by 10 CFR 436.20; or has a savings-to-investment ratio estimated to be greater than one, as described by 10 CFR 436.21; or has an adjusted internal rate of return, as described by 10 CFR 436.22, 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).

Low-rise residential building means any building three stories or less in height above grade that includes sleeping accommodations where the occupants are primarily permanent in nature (30 days or more).

New Federal building means any building to be constructed on a site that previously did not have a building or a complete replacement of an existing building from the foundation up, by, or for the use of, any Federal agency which is not legally subject to State or local building codes or similar requirements.

Process load means the load on a building resulting from energy consumed in support of a manufacturing, industrial, or commercial process. Process loads do not include energy 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.


§433.3 Materials incorporated by reference.

(a) General. The Department of Energy incorporates by reference the energy performance standards 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 a standard by the standard-setting organization will not affect DOE regulations unless and until DOE amends its energy performance standards. Material is incorporated 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. All approved material is available for inspection at the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, Sixth Floor, 950 L’Enfant Plaza, SW., Washington, DC 20024, (202) 586-2945. Also, this material is available for inspection at the 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.

689
§ 433.4 Energy efficiency performance standard.

(a) (1) All Federal agencies shall design new Federal buildings that are commercial and multi-family high-rise residential buildings, for which design for construction began on or after January 3, 2007, but before August 10, 2012, to:
   (i) Meet ASHRAE 90.1–2004, (incorporated by reference, see § 433.3); and
   (ii) 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 ASHRAE Baseline Building 2004.

(2) All Federal agencies shall design new Federal buildings that are commercial and multi-family high-rise residential buildings, for which design for construction began on or after August 10, 2012, but before July 9, 2014, to:
   (ii) 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 ASHRAE Baseline Building 2007.

(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.

§ 433.5 Performance level determination.

(a)(1) For Federal buildings for which design for construction began on or after January 3, 2007, but before August 10, 2012, each Federal agency shall determine energy consumption levels for both the ASHRAE Baseline Building 2004 and proposed building by using the Performance Rating Method found in appendix G of ASHRAE 90.1–2004 (incorporated by reference, see § 433.3), except the formula for calculating the Performance Rating in paragraph G1.2 shall read as follows:

Percentage improvement = \(100 \times \frac{(Base\line\text{ } building\text{ } consumption - Receptacle\text{ } and\text{ } process\text{ } loads) - (Proposed\text{ } building\text{ } consumption - Receptacle\text{ } and\text{ } process\text{ } loads)}{(Base\line\text{ } building\text{ } consumption - Receptacle\text{ } and\text{ } process\text{ } loads)}\) / (Base\line\text{ } building\text{ } consumption - Receptacle\text{ } and\text{ } process\text{ } loads)

where:
- "Percentage improvement" is the percentage improvement of the proposed building's energy consumption levels compared to the ASHRAE Baseline Building 2004.
- "Base\line\text{ } building\text{ } consumption" is the energy consumption levels of the ASHRAE Baseline Building.
- "Receptacle\text{ } and\text{ } process\text{ } loads" is the energy consumption levels of the proposed building that are not considered when calculating the performance rating.

(2) All Federal agencies shall design new Federal buildings that are commercial and multi-family high-rise residential buildings, for which design for construction began on or after July 9, 2014, to:
   (i) Meet ASHRAE 90.1–2010, (incorporated by reference, see § 433.3); and
   (ii) 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 ASHRAE Baseline Building 2010.

(3) All Federal agencies shall design new Federal buildings that are commercial and multi-family high-rise residential buildings, for which design for construction began on or after July 9, 2014, to:
   (i) Meet ASHRAE 90.1–2010, (incorporated by reference, see § 433.3); and
   (ii) 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 ASHRAE Baseline Building 2010.