

**§ 434.508**

criteria of subsections 510 and 521. The modeling shall use a climate data set appropriate for both the site and the complexity of the energy conserving features of the design. ASHRAE Weather Year for Energy Calculations (WYEC) data or bin weather data shall be used in the absence of other appropriate data.

**10 CFR Ch. II (1–13 Edition)**

**§ 434.508 Determination of the design energy consumption and design energy cost.**

508.1 The Design Energy Consumption shall be calculated by modeling the Proposed Design using the same methods, assumptions, climate data, and simulation tool as were used to establish the Energy Cost Budget, except as explicitly stated in 509 through 534. The Design Energy Cost shall be calculated per Equation 508.1.

$$DECOS = DECOS_{jan} + \dots + DECOS_m + \dots + DECOS_{dec} \quad \text{Equation 508.1}$$

Based on:

$$DECOS_m = DECON_{mi} \times ECOS_{mi} + \dots + DECON_{mi} \times ECOS_{mi} \quad \text{(Equation 508.1.2)}$$

Where:

- DECOS = The annual Design Energy Cost
- DECOS<sub>m</sub> = The monthly Design Energy Cost
- DECON<sub>mi</sub> = The monthly Design Energy Consumption of the i<sub>m</sub> type of energy
- ECOS<sub>mi</sub> = The monthly Energy Cost per unit of the i<sub>m</sub> type of energy

The DECON<sub>mi</sub> shall be calculated from the first day through the last day of the month, inclusive.

510.2 Prescribed assumptions shall be used without variation. Default assumptions shall be used unless the designer can demonstrate that a different assumption better characterizes the building's energy use over its expected life. The default assumptions shall be used in modeling both the Prototype or Reference Building and the Proposed Design, unless the designer demonstrates clear cause to modify these assumptions. Special procedures for speculative buildings are discussed in subsection 503. Shell buildings may not use subpart E.

**§ 434.509 Compliance.**

509.1 If the Design Energy Cost is less than or equal to the Energy Cost Budget, and all of the minimum requirements of subsection 501.2 are met, the Proposed Design complies with the standards.

**§ 434.511 Orientation and shape.**

511.1 The Prototype Building shall consist of the same number of stories, and gross and conditioned floor area as the Proposed Design, with equal area per story. The building shape shall be rectangular, with a 2.5:1 aspect ratio. The long dimensions of the building shall face East and West. The fenestration shall be uniformly distributed in proportion to exterior wall area. Floor-to-floor height for the Prototype Building shall be 13 ft. except for dwelling units in hotels/motels and multi-family high-rise residential buildings where floor-to-floor height shall be 9.5 ft.

**§ 434.510 Standard calculation procedure.**

510.1 The Standard Calculation Procedure consists of methods and assumptions for calculating the Energy Cost Budget for the Prototype or Reference Building and the Design Energy Consumption and Design Energy Cost of the Proposed Design. In order to maintain consistency between the Energy Cost Budget and the Design Energy Cost, the input assumptions to be used are stated below. These inputs shall be used to determine the Energy Cost Budget and the Design Energy Consumption.

511.2 The Reference Building shall consist of the same number of stories, and gross floor area for each story as the Proposed Design. Each floor shall be oriented in the same manner as the Proposed Design. The geometric form shall be the same as the Proposed Design.