

§ 434.506

10 CFR Ch. II (1–1–10 Edition)

§ 434.506 Use of the reference building to determine the energy cost budget.

506.1 Each floor shall be oriented in the same manner for the Reference Building as in the Proposed Design. The form, gross and conditioned floor areas of each floor and the number of floors shall be the same as in the Proposed Design. All other characteristics, such as lighting, envelope and HVAC systems and equipment, shall meet the requirements of subsections 301, 401, 402, 403 and 404.

§ 434.507 Calculation procedure and simulation tool.

507.1 The Prototype or Reference Buildings shall be modeled using the 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.

§ 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.

$$\text{DECOS} = \text{DECOS}_{\text{jan}} + \dots + \text{DECOS}_{\text{m}} + \dots + \text{DECOS}_{\text{dec}} \quad \text{Equation 508.1}$$

Based on:

$$\text{DECOS}_{\text{m}} = \text{DECON}_{\text{mi}} \times \text{ECOS}_{\text{mi}} + \dots + \text{DECON}_{\text{mi}} \times \text{ECOS}_{\text{mi}} \quad (\text{Equation 508.1.2})$$

Where:

- DECOS = The annual Design Energy Cost
- DECOS_m = The monthly Design Energy Cost
- DECON_{mi} = The monthly Design Energy Consumption of the i_m type of energy
- ECOS_{mi} = The monthly Energy Cost per unit of the i_m type of energy

The DECON_{mi} shall be calculated from the first day through the last day of the month, inclusive.

§ 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.

§ 434.510 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.

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.