



Computer-based standards for new federal residential buildings facilitate the calculation of the most cost-effective combination of energy conservation measures.

residential buildings using proprietary software provided by equipment manufacturers. DOE developed ASEAM-2 to provide an accurate, easy-to-use energy analysis tool for design and retrofit applications. This computer program is modular in design, allowing users to integrate it with other software, such as life-cycle costing and daylighting programs.

ASEAM-2 can simulate 13 different types of HVAC distribution systems, model up to 10 energy load zones within a building, and size systems automatically. Users can evaluate the effects of changes in lighting, heating and cooling equipment, or increased insulation; estimate energy results for life-cycle cost analysis; and assess the benefits of retrofit options.

The system is of great benefit to state governments; the effects of proposed changes in state energy codes can be analyzed, consistency in the results of energy audits can be established, and the effects of different weatherization techniques can be reviewed. Applications for utilities include assessment of conservation programs, forecasts of system loads, and development of load shifting and load reduction programs.

Computer-based Conservation Standards for New Federal Residential Buildings

Early energy conservation standards for Federal housing projects used simple criteria to guarantee improved energy efficiency in new homes. Unfortunately, these criteria often did not capture the most cost-effective energy conservation measures. In addition, there was no way to account for nonadditive effects of combining conservation methods.

These shortcomings prompted DOE to develop Energy Conservation Standards for New Federal Residential Buildings, the first computer-based standards in the United States. The associated user-friendly computer program calculates the most cost-effective combination of conservation measures and checks compliance with standards. Today builders can explore a wide variety of energy conservation measures quickly and inexpensively, submitting the most cost-effective combination when bidding on Federal housing projects.

Indoor Air Quality Field Studies Data Base

Many experts believe indoor air quality is one of the most important public health issues of the 1990s. Yet the understanding of indoor contaminants and their effect on people is inadequate, and the growing number of field studies on indoor pollutants makes obtaining information from technical literature very time consuming. Consequently, DOE, the Environmental Protection Agency (EPA), the Electric Power Research Institute, and the Gas Research Institute have begun an effort to create and support a computer data base of field studies that monitor concentrations of indoor pollutants in buildings in the United States and Canada. The microcomputer-based Concentrations of Indoor Pollutants Data Base provides information on indoor air pollution concentrations in buildings from more than 300 references. This data base can be used to calibrate, verify, or modify macromodeling efforts designed to predict or characterize indoor pollutant concentrations. More than 200 groups or individuals have used the data base.