PACKAGE ID - 000158IBMPC03 DOE2.1E-120

KWIC TITLE - Building Energy Consumption Analysis

AUTHORS -

LIMITATION CODE -UNL **AUDIENCE CODE -** UNL

COMPLETION DATE - 04/10/2002 **PUBLICATION DATE -** 04/10/2002

DESCRIPTION - DOE2.1E-119 is a set of modules for energy analysis in buildings. Modules are included to calculate the heating and cooling loads for each space in a building for each hour of a year (LOADS), to simulate the operation and response of the equipment and systems that control temperature and humidity and distribute heating, cooling and ventilation to the building (SYSTEMS), to model energy conversion equipment that uses fuel or electricity to provide the required heating, cooling and electricity (PLANT), and to compute the cost of energy and building operation based on utility rate schedule and economic parameters (ECONOMICS). DOE2.1E-119 contains modifications to DOE2.1E which allows 1000 zones to be modeled.

PACKAGE CONTENTS - Media Directory; Software Abstract; Note on DOE2.1E-120; Media Includes LA-7689-M(Ver.2.1)Pt.1 and Pt.2, LBL-11353, LBL-34946, LBL-34947, document updates 1, 2, 3, 4, Source Code, ReadMe, Executable, Auxiliary Material, Compilation Instructions, Linking Instructions, Sample Problem Input and Output;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 CD ROM

METHOD OF SOLUTION - Heat conduction through walls is determined with response factors. Thermal mass effects are calculated with room weighing factors. Hourly simulation of heating and cooling equipment is quasi-steady state using performance curves.

OPERATING SYSTEMS - Microsoft Windows 95, 98, NT, or XP

PROGRAMMING LANGUAGES - FORTRAN 77

SOFTWARE LIMITATIONS - DOE2.1EVER117 supports modeling of up to 1000 zones.

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - Input Functions allow users to enter FORTRAN-like routines in the input to modify the program calculations without recompilation. Macros allow input of parameters that are mathematical expressions instead of fixed values. Parametric run feature simplifies doing sensitivity analyses. LOADS and SYSTEMS output files can be saved for reuse to reduce calculation time.

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UNIQUE FEATURES -(CONT) Building Description Language simplifies input of building data. Hourly reports allow detailed examination of building performance.

RELATED SOFTWARE - Weather data processor program. UPDATE program for processing program modifications.

OTHER PROG/OPER SYS INFO - File naming conventions: .SRC UPDATE source file, .UPL UPDATE program library, .MOD UPDATE modification file, .FOR FORTRAN source code, .OBJ object file, .EXE executable file, .TMP temporary file, .BIN binary file, .DAT ASCII data file,. INP input file, .INC include file for macro input, .OUT output file.

HARDWARE REQS - A minimum of 6 Mb RAM and 40 Mb hard disk on IBM-compatible PC running Windows 95/98/NT/XP.

TIME REQUIREMENTS - Execution time per thermal zone for a one year period is 2-5 seconds depending on input complexity and processor speed.

REFERENCES - F.C. Winklemann, B.E. Birdsall, W.F. Buhl, K.L. Ellington, A.E. Erdem, J.J. Hirsch, and S.Gates, DOE-2 Sample Run Book Version 2.1E, LBL-34945, November 1993 (PAGE 3.57 IS MISSING); F.C. Winklemann, B.E. Birdsall, W.F. Buhl, K.L. Ellington, A.E. Erdem, J.J. Hirsch, and S. Gates, DOE-2 Supplement Version 2.1E, LBL-34947, November 1993; F.C. Winklemann, B.E. Birdsall, W.F. Buhl, K.L. Ellington, A.E. Erdem, J.J. Hirsch, and S. Gates, DOE-2 BDL Summary Version 2.1E, LBL-34946; B.E. Birdsall, W.F. Buhl, K.L. Ellington, A.E. Erdem, and F.C. Winklemann, DOE-2 Basics Version 2.1E, LBL-35520, May 1, 1994\ Group Q-11,, Los Alamos National Laboratory, and Building Energy Simulation Group, Lawrence Berkeley Laboratory, DOE-2 REFERENCE MANUAL Version 2.1D, Parts 1 and 2, LBL-8706 Rev. 5, June 1989; Simulation Research Group, Lawrence Berkeley Laboratory, DOE-2 BDL SUMMARY Version 2.1D, LBL-8688, Rev. 5, June 1989; Simulation Research Group, Lawrence Berkeley Laboratory, DOE-2 SAMPLE RUN BOOK Version 2.1D, LBL-8678, Rev.3, June 1989; 1977 ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating, and Air Conditioning Engineers.

ABSTRACT STATUS - Released AS-IS 4/10/2002.

SUBJECT CLASS CODE - T

SPONSOR - DOE/CE

PACKAGE TYPE - AS - IS