

PACKAGE ID - 000787IBMPC00 WINDOW 4.1

KWIC TITLE - Determines the Thermal and Optical Properties
of Fenestration Systems

AUTHORS - Arasteh, D.
Lawrence Berkeley National Lab., CA (United States)

Finlayson, E.
Lawrence Berkeley National Lab., CA (United States)

Rubin, M.
Lawrence Berkeley National Lab., CA (United States)

Huizenga, C.
University of California, Berkeley, CA (United States)

LIMITATION CODE -COPY **AUDIENCE CODE** - LIM

COMPLETION DATE - 03/01/1994 **PUBLICATION DATE** - 03/01/1992

DESCRIPTION - WINDOW4.1 computes the thermal properties of windows and other fenestration elements used in typical residential and commercial buildings. Manufacturers, specifiers, architects, consumers, and the energy code specialists all need to know these properties (U-values, Solar Heat Gain Coefficients, optical properties). The use of this program to calculate these properties is typically much more cost effective than laboratory test procedures. Properties of complete window systems are based on libraries (or user input) component data.

PACKAGE CONTENTS - Media Directory; Software Abstract; LBL-32091; Media includes Text Library, Auxiliary, Executable Module;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 2 3.5 Diskettes

METHOD OF SOLUTION - WINDOW uses a one-dimensional finite-difference calculation procedure to determine the center of glass performance of glazing systems, based on heat transfer correlations for parallel-plane geometry. Standard optical routines (including a multi-band spectral model) are used to determine total glazing system optical properties. Version 4 incorporates results of 2D heat transfer modeling (performed outside of WINDOW) on frames/edges into the final total product property calculation sequence.

COMPUTER - IBM PC

OPERATING SYSTEMS - MS DOS 3.1 or higher

PROGRAMMING LANGUAGES - FORTRAN (10%) and C (90%)

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SOFTWARE LIMITATIONS - The program cannot analyze any more than 6 glazing layers. The program's libraries (for stored component data) are limited to 999 entries except for the environmental conditions library (99 entries) and the glass and windows libraries (9999 entries). The program's accuracy is currently limited to standard frame/edge correlations or to the use of an accessory 2-D heat transfer simulation program.

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - At this time there is only one other program (VISION, developed in Canada) which preforms heat transfer and optical analyses of fenestration systems. Users will typically select WINDOW over VISION because it is more user friendly. Results are comparable. WINDOW is referenced by US energy codes, VISION by Canadian energy codes.

RELATED SOFTWARE - The FRAME program, developed in Canada for analyzing window frame/edge heat transfer, is often used to analyze window frames in detail. Output from FRAME can be used in WINDOW in place of generic defaults for increased accuracy. However, this is not required to run WINDOW.

OTHER PROG/OPER SYS INFO - Included with the program are component libraries with a master set of component data. These files carry the >DAT extension. For example, the file GLASS.DAT is an ASCII file which contains basic data on many common glass materials. This file, and other .DAT files are read by WINDOW which allows the user to preform operation on this data base.

HARDWARE REQS - An IBM PC compatible with 640K of RAM.

TIME REQUIREMENTS - The program runs instantaneously on PC's with a math co-processor. It may take up to several minutes on earlier machines without a math co-processor.

REFERENCES - Windows and Daylighting Group, WINDOW 4.0, A PC Program for Analyzing Window Thermal Performance, LBL-32091, March 1992

ABSTRACT STATUS - WINDOW 4.1 Submitted 3/8/95. Released AS-IS 4/15/98

SUBJECT CLASS CODE - HT

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W CODES
BUILDINGS
WINDOWS
THERMODYNAMIC PROPERTIES
TESTING
HEAT TRANSFER

EDB SUBJECT CATEGORIES -

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SOFTWARE ABSTRACT

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