J-Works

Version 2.2

Written by

Harry Simpson

Before You Start

From the Author

I have been doing load calculations for over 17 years. I firmly believe that the greatest obstacle to comfort and energy savings is correctly sizing heating and cooling equipment on a case-by-case basis. The Manual J method was developed by ACCA (Air Contractors of America) to provide an accurate method to obtain this information. This process is tedious but, compared to "guessing", well worth the effort. J-Works was written to speed up the whole process of calculating loads for residential structures. I have tried to design J-Works to enhance my productivity, and it has. J-Works has been approved for use by the Tennessee Valley Authority as an approved software program for use in their Heat Pump Program. Please send any comments about what you would like to see in future versions and/or what you don't like about this version. Send your registration and/or comments to:

MicroWorks
3913 Country Park Lane
Murfreesboro, TN 37129

Definition Of Shareware

Shareware distribution gives users a chance to try software before buying it. If you try a Shareware program and continue using it, you are expected to register. Individual programs differ on details -- some request registration while others require it, some specify a maximum trial period. With registration, you get anything from the simple right to continue using the software to an updated program with printed manual.

Copyright laws apply to both Shareware and commercial software, and the copyright holder retains all rights, with a few specific exceptions as stated below. Shareware authors are accomplished programmers, just like commercial authors, and the programs are of comparable quality. (In both cases, there are good programs and bad ones!) The main difference is in the method of distribution. The author specifically grants the right to copy and distribute the software, either to all and sundry or to a specific group. For example, some authors

require written permission before a commercial disk vendor may copy their Shareware.

Shareware is a distribution method, not a type of software. You should find software that suits your needs and pocketbook, whether it's commercial or Shareware. The Shareware system makes fitting your needs easier, because you can try before you buy. And because the overhead is low, prices are low also. Shareware has the ultimate money-back guarantee -- if you don't use the product, you don't pay for it.

Disclaimer - Agreement
Users of J-Works must accept this disclaimer of warranty:
J-Works is supplied as is. The author disclaims all warranties, expressed or implied, including, without limitation, the warranties of merchantability and of fitness for any purpose. The author assumes no liability for damages, direct or consequential, which may result from the use of J-Works.

J-Works is a "shareware program" and is provided at no charge to the user for evaluation. Feel free to share it with your friends, but please do not give it away altered or as part of another system. The essence of "user-supported" software is to provide personal computer users with quality software without high prices, and yet to provide incentive for programmers to continue to develop new products. If you find this program useful and find that you are using J-Works and continue to use J-Works after a reasonable trial period, you must make a registration payment of $25.00 to MicroWorks. The $25.00 registration fee will license one copy for use on any one computer at any one time. To register, print the text file REGISTER.TXT, fill out and mail to MicroWorks. You must treat this software just like a book. An example is that this software may be used by any number of people and may be freely moved from one computer location to another, so long as there is no possibility of it being used at one location while it's being used at another. Just as a book cannot be read by two different persons at the same time.

Commercial users of J-Works must register and pay for their copies of J-Works within 30 days of first use or their license is withdrawn. Site-License arrangements may be made by contacting MicroWorks.

Anyone distributing J-Works for any kind of remuneration must first contact MicroWorks at the address below for authorization. This authorization will be automatically granted to distributors recognized by the (ASP) as adhering to its guidelines for shareware distributors, and such distributors may begin offering J-Works immediately (However MicroWorks must still be advised so that the distributor can be kept up-to-date with the latest version of J-Works .).

You are encouraged to pass a copy of J-Works along to your friends for evaluation. Please encourage them to register their copy if they find that they can use it. All registered users will receive a copy of the latest version of the J-Works system.

Support
MicroWorks provides 90 days free support for all software products. This period begins from the date of registration. Registered users receive the latest version of the program and a printed manual. Registered users will also receive special rates on the upcoming Windows version of J-Works.

MicroWorks is a member of the Association of Shareware Professionals (ASP). ASP wants to make sure that the shareware principle works for you. If you are unable to resolve a shareware-related problem with an ASP member by contacting the member directly, ASP may be able to help. The ASP Ombudsman can help you resolve a dispute or problem with an ASP member, but does not provide technical support for members' products. Please write to the ASP Ombudsman at 545 Grover Road, Muskegon, MI 49442-9427 USA, FAX 616-788-2765 or send a CompuServe message via CompuServe Mail to ASP Ombudsman 70007,3536.

Files Listing
The following files are included:
      JWORKS.EXE   The executable program
      BLANK.WKB   The "blank" template data file

```
JWORKS.ICO    Windows 3.x icon for J-Works.
JWORKS.DOC    Program documentation (Word 6)
JWORKS.WRI    Program documentation (Windows Write)
JWORKS.TXT    Program documentation (text file)
REGISTR.TXT   Program registration form and instructions
```

Backup Disk

Make a back-up disk using the DOS diskcopy command. It is recommended that J-Works be installed onto a hard disk for speed and convenience. Make a directory on your hard disk (ex: MD JWORKS). Then change to that directory using the CD \JWORKS command. Then type COPY A:*.* to copy all program files to the hard drive.

Template

You may also want to modify BLANK.WKB file. In this file you would enter your name, company, address, and default values in the variable cells. You would then save the file as BLANK.WKB. Then each time you start the program you could go to *FILE/GET* command and retrieve the BLANK.WKB file for use to shorten your setup time.

Manual J

J-Works is intended to be used with the ACCA Manual J booklet. For assistance in obtaining this publication, contact:

Air Conditioning Contractors of America
1513 16th Street, NW
Washington, DC 20036
(202) 483-9370

Main Menu and General Guidelines

J-Works contains a top pull-down menu bar containing *Worksheet*, *Range*, *File*, *Print*, *System*, *Video,* and *Quit* options. This menu is accessed using the *I* key or by clicking on the selection with the left mouse button. Use the **Esc** key to back out of each menu level.

Worksheet contains global defaults for _Printer_, _Directory_, and _Other_.

Range contains the _DeOvr_ option. _DeOvr_ is the deoveride procedure which returns and restores a previous cell's calculated value. To use this option, place the cursor over the overridden cell (Note: All overridden cells are denoted by yellow numbers.) and then access the _Range_ and _DeOver_ options. Follow the on screen prompts.

File allows you to _Get_ and _Save_ data in the J-Works program. Choose either option. A pop-up menu will appear with .WKB files (data files) to choose from. You may highlight one of the files or type in a different drive selection.

Print is actually not needed but included. All printing of worksheet data is handled through the print procedures in the macro menu.

System allows you to temporarily go to the DOS prompt. Typing EXIT will return you to J-Works.

Video gives you control over screen colors and display modes. (Note: Any change in _Size_ will affect the formatting of the macro menu procedures. Screen display should be returned to normal size before executing the macro menu procedures.) After arriving at a desirable screen display, you may save the .VID file for future use. A .VID file keeps the display configuration information.

Quit allows you to exit the program. Save to disk the .WKB file before exiting J-Works. Type a new name to avoid overwriting any templates.

Macro Menu

A macro menu controls the screen view and printing process. Below is a description of each selection in the macro menu. Hold down the **Alt** key and press the **F3** function key.

Alt + F3 key combination evokes the pop up macro menu containing seven choices:

> *CFM_CALC*   *DATA_IN*   *FORMTOP*
> *PRINTJ*   *PRINTSHORT*   *TITLE*
>   *PRINTCFM*

TITLE would be the first choice from the menu in most cases. Highlight the choice and press the **ENTER** key. Enter the customer name and address information. (Note: Use a **'** or **"** before entering a numeric label.) Enter your name and address information if necessary. Data entry locations are usually denoted by **><** brackets around the data entry fields.

PgDn to the Design Conditions screen to see if default figures are appropriate for your application.

PgDn twice and check the Winter and Summer AC/HR (air changes per hour) entries to see if they need to be modified.

FORMTOP would be the next step. This brings you to the top left corner of the worksheet area. Enter the ceiling height if different than eight feet. This height will be carried to all the rooms as the default. Next, go down the Construction No. blocks modifying them and the resulting HTMs as needed. Enter the duct gain/loss percentages in decimal form (ex: 10% would be 0.10) if different from the defaults.

Now you are ready to enter the room-by-room data.

DATA_IN sets up a moving window on the right side of your screen. The stationary left window lets you maintain your orientation in the worksheet. *DATA_IN* sets the cursor in position to start data entry on the first room. (Note: If doing a whole house load only, use the first room only to enter in your data.)

Enter the name of the room, running exposed feet, and room dimensions. Most rooms are not going to be perfect squares for load calculation purposes. Figure the square footage and enter a tenth in

decimal form. (ex. 245 sq. ft. would be 24.5 x 10 = 245.) If needed, enter ceiling height other than 8 feet.

Continue to enter data in cells for different areas of structure. Winter glass area is calculated by the program for you, so just enter the Summer glass data first. It is recommended that glass in doors be entered as window area and subtracted from door sq. ft.

Ceiling and floor sq. ft. are calculated for you. In cases where the house is two stories or more, you will have to override the default and enter in the appropriate sq.ft. for the room. (ex: first floor usually would have no attic sq. ft.)

Number of people and/or appliances is set up such that entering a 1 or decimal fraction thereof will assume that you are referencing appliances. Enter people as 2 or more for areas of use. (ex: Entering .75 would add 900 Btuh to the room. Entering .25 in another room would add 300 Btuh, for your standard 1200 Btuh appliance load for the house.)

This should complete your first room data entry. **PgUp** until you are at the top of the worksheet and use the ----> key to move the right window to the next room and enter data for that room and so on.

CFM_CALC is a room by room air distribution calculator. When you have completed all data entry for all rooms, press Alt + F3 to get back to the macro menu. Highlight CFM and press ENTER.

Enter the cfm/ton which you would like to design with. Then enter the ARI nominal Btuh total capacity which the structure will require based on the Sensible and Latent figures in this section.
Total cfm is then calculated and possible cfm and number of registers is calculated for each room. Note that the cfm can be overridden so that small allowances may be made for rooms.

The return needed section calculates the gross return filter size. This is calculated by taking half of the system cfm and dividing that by .8 . The possible filter sizes are consisted of the first number which is a standard size and a second number which is merely the gross divided

by this first number. Choose a common filter size as large or larger and enter the result as a label in the recommended filter entry area. (Note: Use the ' or " first to denote a label entry.)

PRINTSHORT is a procedure which prints the title sheet, the air infiltration and summary sheet, and the first room data entry sheet. This would be all you would need to print out for the whole house load.

PRINTJ is the printout of all worksheets. This will print out all fourteen room worksheets along with the title and summary sheets.

PRINTCFM prints out the cfm calculation sheet, useful for reference in designing your duct layout and sizing.