

The Manufactured Home Energy Audit

MHEA Version 2.1

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Outline - The Manufactured Home Energy Audit

- Introduction
- Basic Operation
- Data Requirements
- Sample Run
- User Feedback
- Future Releases



Introduction

- Why MHEA?
 - Program advancement
 - Cost-effective guidelines
 - Standardization / uniformity
 - Separate vs. combined NEAT/MHEA
 - Different constructions and measures
 - User's input
 - NREL's studies



Introduction

- Releases
 - Version 2.12 , November 1997
 - Version 2.15, June 1998 (current production version)
 - Version 2.16, March 1999 (for users with printer problems)



Introduction

- Current Users

- 11 states as of summer 1998: (DNR Survey)

- Arkansas, California, Kansas, Louisiana, Missouri, Nebraska, Nevada, North Carolina, South Dakota, Virginia, West Virginia

- 7 additional states with users: (from personal contacts)

- Florida, Kentucky, New Jersey, Ohio (pilot), Pennsylvania, Tennessee, Washington DC



Basic Operation - Installation

- Use instructions in NEAT User's Manual
- DOS / Windows 3.1/3.11/95/98
 - Obtain DOS prompt
 - Insert Program Disk
 - Access disk by typing **A:** (**B:**)
 - Type **INSTALL** <Path> , where <Path> is location on hard disk (e.g. **C:\WA**)
 - Icon installation provided



Basic Operation - Installation (cont.)

- Windows 95
 - Access Add/Remove Programs from Control Panel
 - Insert Program Disk
 - Click on **INSTALL** then **NEXT**
 - Modify text window to read
A:\INSTALL.BAT C:\WA
 - Press **ENTER**
 - When finished, Close DOS window



Basic Operation - Starting MHEA

- Obtain DOS prompt
- Access Weatherization Assistant directory, (e.g. C:\WA)
- Enter
 - **WA** to start Weatherization Assistant, then click on manufactured home button or
 - **MHEA** to start MHEA directly
- Or, use WA Icon from Windows, if installed



Basic Operation - The Main Menu

- **Files** - Manage building descriptions / Print results
- **Inputs** - Input building description & billing data
- **Run** - Run the program for current building description (with weather or billing data)
- **View** - Display recommended measure results & associated data
- **Quit** - Exit program
- **Setup** - Customize program to specific location
- **Help** - Provide assistance / explanation



Basic Operation - The Main Menu

- Managing Building Descriptions (Files)
 - Begin describing a new building description
 - Open an existing building description
 - Save or Copy the currently open building description
 - Close currently open building description
 - Delete building descriptions and report files
 - Print input and recommendations



Basic Operation - The Main Menu

- Managing Building Descriptions (Files) (cont.)
 - “File Names”
 - Identify specific building to user and computer
 - Chosen by user
 - No limit on number but must be unique
 - Eight or less characters (A-Z, 0-9, _, \$)
 - Not case sensitive
 - Examples: Job control number, abbreviated name or address
 - May be general housing types for later use: “2WIDE”, “STANDARD”



Basic Operation - The Main Menu

- View
 - Input summaries
 - Recommendations
 - Heating / cooling energy savings
 - Heating / cooling dollar savings
 - Savings-to-investment ratios (SIRs)
 - Measure costs
 - Cumulative savings and costs
 - Billing data
 - Sizing recommendations
 - Comments



Basic Operation - The Main Menu

- Setup
 - Set Material/Measure & Fuel Costs
 - Set Fuel Escalation Rates
 - Choose measures to be considered
 - Set Parameters/assumptions
 - Install/Remove/Choose Weather Data
 - Set Default values



Basic Operation - Navigating The GUI

- Menus
 - Activating
 - Left clicking mouse on menu name
 - [Alt][underlined letter] keys
 - Closing
 - Left clicking mouse on blank screen
 - [Esc] key



Basic Operation - Navigating The GUI

- Data Entry
 - Check Box Groups
 - Make selection from fixed number of choices
 - Selecting
 - Pointing (turning red) then left clicking mouse or
 - [Up Arrow] or [Down Arrow] then [Enter] keys



Basic Operation - Navigating The GUI

- Data Entry (cont.)
 - Data Fields
 - Selecting
 - Pointing then left clicking mouse
 - Cycling through with [Enter], [Tab], and [Shift-Tab] keys
 - [Alt][underlined letter] keys
 - Editing
 - [Home], [End], [Left Arrow], [Right Arrow] keys
 - Backspace/Delete keys
 - Insert/Overwrite modes
 - Erasing - Type alphanumeric as first character



Basic Operation - Navigating The GUI

- Data Entry (cont.)
 - Defaults
 - Set in “Setup\Default Values\Inputs”
 - click the “Defaults” button to implement
 - Overwrites without warning



Basic Operation - Navigating The GUI

- Multiple Record Components
 - Component types having more than one description (record)
 - MHEA multiple record components
 - Only:
 - Windows
 - Doors



Basic Operation - Navigating The GUI

- Multiple Record Components
 - Record number indicator (e.g. “2/5”)
 - Moving amongst multiple records
 - Next and Previous buttons



Basic Operation - Navigating The GUI

- Multiple Record Components
 - Adding records
 - Add button
 - Displays input screen with default values entered
 - Removing records
 - Delete button
 - Immediately eliminates record, moving higher numbered records down one each



Basic Operations - Navigating The GUI

- Other GUI Constructions
 - Vertical Scroll Bars
 - Used on displays containing more data than can be viewed on a single screen
 - Pick Lists (Single and Multiple)
 - Select item by pointing mouse at it (turning it red) and left clicking mouse
 - Help Features (General and Context Sensitive)
 - General - Select from pick list under “Help” menu item
 - Context Sensitive - Accessed by clicking right mouse button or pressing [F1] key while pointing to item (turning it red)



Data Requirements - Key Topics

- General
 - Include Other Costs in SIR
 - Infiltration / Duct Sealing parameters
- Construction - Floor
 - Maximum Depth of belly cavity
- Construction - Windows / Doors
 - Number of windows/doors in each orientation
- Construction - Roof / Ceiling
 - Cathedral ceiling description



Data Requirements - Key Topics

- Heating Equipment
 - Average indoor temperature
 - Replacement costs specified in Setup/Measure Costs
- Additions
 - Similar to Construction items
 - Floor - What if slab-on-grade?



The Manufactured Home Energy Audit

- MHEA Example 1 Exercise
- Running MHEA
 - With weather
 - With billing data
- Viewing Results

