



INDIANA BUILDERS ASSOCIATION

IBA HOME ENERGY CONSERVATION PROGRAM

NEAT and MHEA Step by Step User Guide

Starting the Weatherization Assistant

If you have not already downloaded the NEAT/MHEA Version 8.6.0.4 Executable File/Software and the IBA Data base (wa8-6_IBAVer1.0_8.6.0.4.mdb) for this Software from the IBA Website, you **MUST** do so first before running a NEAT OR MHEA Audit. The necessary parameters and Setup Library costs for the IBA costs centers are included in this new Database. Together with these instructions and the PDF Field Information Gathering Forms, this new database will provide the tools you need to create a successful NEAT or MHEA Audit. Please follow the **IBA NEAT and MHEA Download and Instructions**. The first time you open the program, it will tell you that it must connect to the back-end database. Click on the OK to continue. You will then be asked to confirm that the linking was successful. A similar process will be performed for a reporting module. Subsequent initiations of the Weatherization Assistant will take you immediately to an introductory banner indicating that the Weatherization Assistant has been developed for the Department of Energy and giving a version number and release date. This screen will automatically disappear once the program has fully loaded and will be followed by the **Main Menu Page** for the Weatherization Assistant. It is from this form that you will access all of the functions included in the program. Present on the form are buttons taking you to all of the major functions: your **AGENCY** description, **CLIENT** data, the Site Built (**NEAT**) and Mobile Home (**MHEA**) audits.

To begin you must Link to the IBA Database (wa8-6_IBAVer1.0_8.6.0.4.mdb) that you downloaded from the IBA Website. On the NEAT Main Menu Page click the **Data Link** button in the lower right of the page. Now click the upper right **Browse** button on the Data Link Page. Find your downloaded (wa8-6_IBAVer1.0_8.6.0.4.mdb) database on your desktop in the window provided and click the **Open** Button. Now Click the **Link** button to the right of the upper **Browse** button. A message affirming the Data Link was successful should appear. Click **OK**. You are now ready to follow these instructions and begin creating a NEAT or MHEA Audit.

NEAT and MHEA AUDIT INSTRUCTIONS

The following Instructions have been written to offer IBA Auditors concise procedural directives for using the NEAT and MHEA Audit Software. Instructions for **ONLY** the necessary Tabbed sections are included here. All other Tabbed sections can be ignored. For more detailed Audit Instruction please see the following internet link- <http://eber.ed.ornl.gov/pub/weatherization/Manuals/WA8%20Manual.pdf>

The Escape Key

The **Esc** key is a useful way to back out of your changes. It is similar to an "Undo" command. If you have made changes to a field but have not yet left the field, pressing the [Esc] key restores the value that was in the field prior to your change. Two consecutive [Esc] keys (or only one [Esc] if you are not in a field) will back out of all changes you have made to all the controls on a form since entering it. Once leaving a form and navigating to another, the changes in the former are saved and cannot be reversed. Thus, if you have doubts whether many changes you will make to a record are desired, you might consider making a copy of the record prior to initiating the changes.

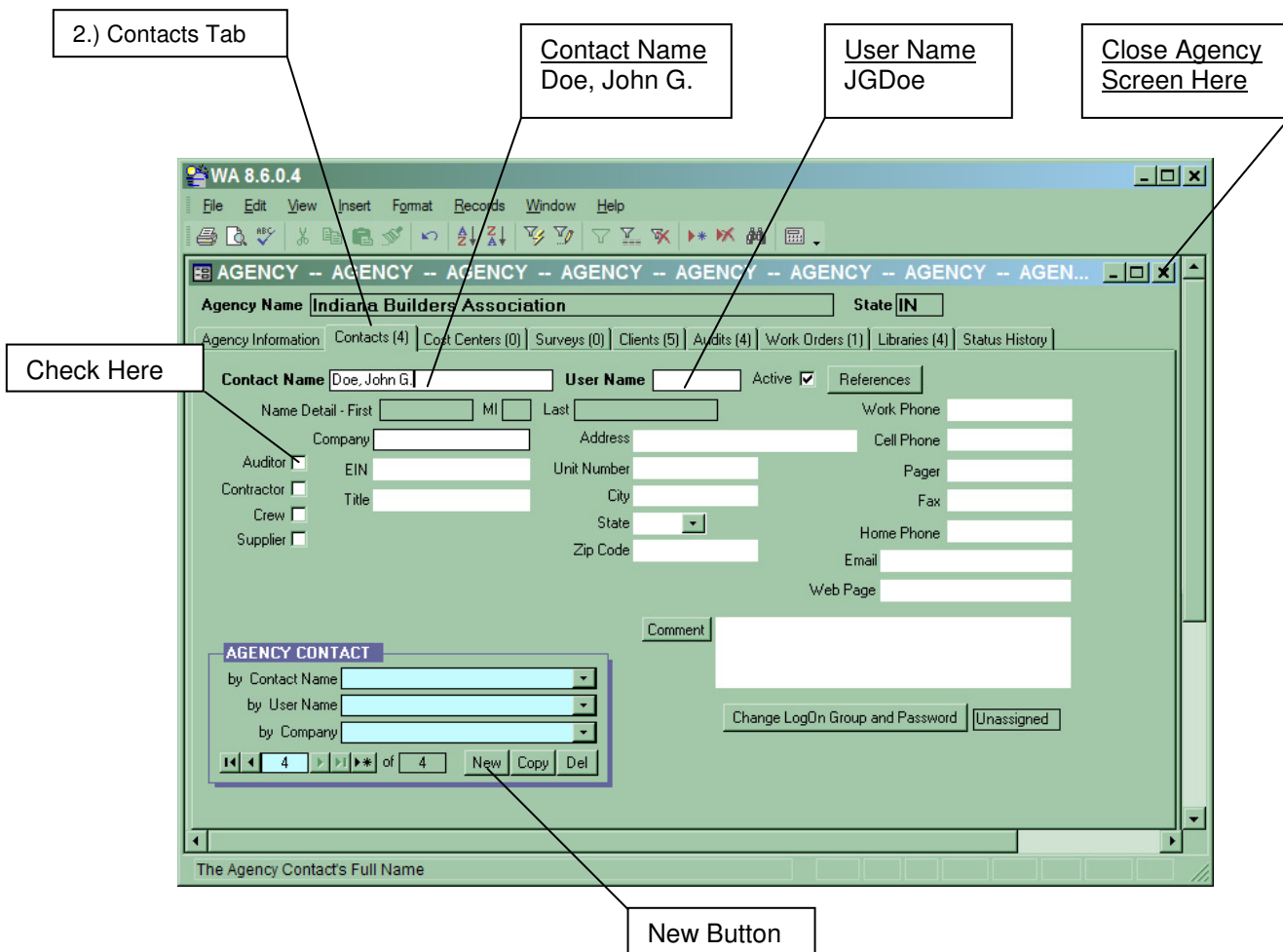
“Help”

All data items on the tabs under the Audit Main Menu items (NEAT and MHEA) have item-specific **“Help”** associated with them. Striking the **F1** key while positioned at any data entry item will display help material specific to that data item. Likewise with the cursor positioned at any data entry item you can simply click the word **“Help”** and then Click **“Weatherization Assistant Help”** on the Top Menu Bar. Either Method will supply the help you need.

Step # 1 – The “AGENCY” BUTTON, Agency Information Tab, Contacts Tab

The Agency Button **MUST** be used to identify the Auditor prior to beginning your first NEAT or MHEA Audit.

- 1.) Open the NEAT Weatherization Assistant software. The WA 8.6.0.4 Main Menu page will appear. Click on the “Agency” button. The Agency Information Tab will display the Agency information for the Indiana Builders Association.
- 2.) Now Click on the second tab at the top of the Agency form titled “Contacts” (see Figure Below) and then locate the **AGENCY CONTACT** box in the lower left corner of the form.
- 3.) As a first-time user, click the “New” button and complete all of the fields on the form. Begin by typing your name over the black highlighted “Contact Name”, (ie. Last Name, First Name and Middle Initial) . Make your “User Name” your First Initial followed by your Middle Initial and your Last Name- all with no spaces between them (i.e., JGDoe). You may leave the EIN and title fields blank. Be sure to check the appropriate box on the left side of the form to identify yourself as an Auditor. You will NOT need to enter this Agency Form for future audits. If you wish to change your information at some future date, you should first be sure to select your name from the “by Contact Name” drop-down box arrow located in the AGENCY CONTACT box. If you make a mistake you can back out of a field using the escape key or you may delete the entire form’s entry by clicking the delete button for the displayed entry.
- 4.) None of the other Tabs at the top of the Agency form are necessary for you to complete your audit. You may now close the AGENCY -- AGENCY -- AGENCY form by clicking the “X” in the upper right corner of the inner window. **DO NOT** click the “X” on the Outer screen or you will close the entire program.



Contacts Tab

The screenshot shows a software window titled 'WA 8.6.0.4' with a menu bar (File, Edit, View, Insert, Format, Records, Window, Help) and a toolbar. The main window displays a 'Contacts Tab' for a client. The client information includes: Client ID [00004 House with crawl space], Client Name [Crawlspace, Joe], and Alt. Client ID. Below this are tabs for Client Information, Status, Energy Index, Contacts (1), Audits (1), WorkOrders (1), Surveys (0), and Photos (0). The 'Contacts' form contains the following fields: Full Name [Crawlspace, Joe], Name Detail - First, MI, Last, Primary Applicant (checked), Contact Type (Applicant/Person of Record), Address, Unit Number, City, State, Zip Code, Work Phone, Cell Phone, Pager, Fax, Home Phone, and Email. A 'Copy Client Addr' button is located next to the address field. A 'CLIENT CONTACT' table is shown with one entry: 'by Contact Name' and a 'Comment' field. At the bottom of the table, there are navigation buttons: '<|> 1 >>|>>' of 1, and 'New Copy Del'. Callout boxes H through L point to the 'Full Name' field, 'Primary Applicant' checkbox, 'Contact Type' dropdown, 'Copy Client Addr' button, 'New' button, and the bottom status bar.

7.) Click the “**Contacts**” Tab. Populate the **Contacts** form as follows:

- H.) Enter client name in “**Full Name**” field.
- I.) Check the “**Primary Applicant**” check box.
- J.) In the “**Contact Type**” drop down box, choose “**Applicant / Person of Record**” for the client.
- K.) Enter the other information you desire using available fields (note that Client address can be populated with “**Copy Client Address**” button).
- L.) Add additional client contacts if needed, by clicking “**New**” button and entering needed detail. Again use the “**Contact Type**” drop down box to choose the correct contact type.

8.) Now click on the 5th tab – the **Audits** tab. In the bottom right corner of the **Audits** Tab form, choose either the **Create New Site Built (NEAT) Audit** or **Create New Mobile Home (MHEA) Audit** button depending on which audit is applicable for the client’s house. This brings you to the **Audit Information** form under the NEAT or MHEA Main Audit Menu. You will return to this form in **Step # 5 for NEAT** or **Step #16 for MHEA** once you have completed Steps 3 and 4.

Client set up is now complete. You may now close the CLIENT – CLIENT -- CLIENT form by clicking the “X” in the upper right corner of the CLIENT – CLIENT – CLIENT inner window. Remember Do NOT click the “X” on the Outer screen or you will close the entire program.

Step # 3 – The Setup Library Button, (Choosing a Cost Center)

- 9.) In the lower left corner of the WA 8.6.0.4 **Main Menu** Page click the **Setup Library** button; the **Setup Library Information** Tab and Form will appear. Locate the **SETUP LIBRARY** box in the lower left corner of this form.
- 10.) Click on the **“by Library Name”** drop down box and choose Cost A, Cost B, or Cost C for the Indiana County in which this audit is being performed. This choice must match your previous choice for a Setup Library Cost on the Client Information Tab in instruction # 6.) C.

Due to prevailing wage determination variations throughout the state, the following install pricing applies.

Install Cost “A” Counties: Decatur, DeKalb, Jackson, LaGrange, LaPorte, Noble, Steuben.

Install Cost “B” Counties: Blackford, Fayette, Fulton, Hancock, Huntington, Jasper, Madison, Marshall, Newton, Parke, Wabash, Wayne, Wells.

Install Cost “C” Counties: Boone, Carroll, Cass, Delaware, Hamilton, Hendricks, Howard, Marion, Montgomery, Owen, Posey, Pulaski, Starke, Tipton, Vanderburgh, Vermillion, Vigo, White.

- 11.) Now click on the Third Tab titled **Fuel Costs** and proceed to the next Instruction page.

CAUTION: Do NOT click on any of the Tabs in the **Setup Library** other than **Setup Library Information** and **Fuel Costs**. All other Tabbed parameters and settings must remain as they are currently set.

Setup Library Information Tab

11.)

Setup Library Box

Choose (Cost A), (Cost B), or (Cost C)

Step # 4 – The Setup Library Button, Fuel Costs Tab

- 12.) You must enter Fuel Costs for your Weatherization client's Fuel Vendors or Utilities in the County in which your audit is being conducted. Average Fuel Costs should be obtained by calling Utilities for Program Years starting in the Spring. Update costs every 6 months, preferably April and November. The most accurate costs are needed for the winter heating months where the greatest savings can be realized.
- 13.) Click on the “**by Name**” drop down box at the bottom of the screen and **Choose ACME County, Indiana**, Indiana. You will notice in the Comment Box that Average Fuel Costs are shown here for ACME Electric and Atlantis Natural Gas in ACME County only. All other costs listed here for other fuels are Fictitious defaults and are NOT accurate for your State/County or local area. Click the Word “**Copy**” under the drop down box to create a copy of the ACME County Record and Cost Table. You must type over the Black Highlighted ACME County Fuel Cost Table Name with the Name of the County where you are doing your NEAT Audit. Use the Comment box to identify the names of Utilities in the county and be aware that there may be several different Vendors or Utilities for the same Fuel Type in the same county. If you prefer, you may enter the name of One Fuel Vendor or Utility in the Fuel Cost Table Name instead of the County Name. You can NOT use Fuel Costs for ACME County. You must use the specific average costs for your client's county and your client's utilities.
- 14.) Determine the Average Unit Cost for your Audit's/County's Fuel Type(s) in the Units of Measure specified in the table. The table's cost column is the only column that can be altered and the unit cost MUST be for the units specified in the table. Fuel Conversion Factors that may be needed to populate the table are provided on the next page of these instructions.

Fuel Costs Tab

Library Name IBA Setup Library [Cost A] References

Setup Library Information | Key Parameters | FuelCosts (2) | Fuel Price Indices | Library Measures | User Defined Measures (199) | NEAT Insulation Types

Fuel Cost Table Name ACME County, Indiana References

Comment Average Fuel Costs thru April 2010 for ACME Electric and Atlantis Natural Gas
All costs listed here are Fictitious Defaults and are NOT accurate for your State/County or local area.

Fuel Type	In Units of	Unit Cost	Heat Content (MMBtu)
Natural Gas	Mcf	9.592	1.000000
Oil	Gallon	3.710	0.140000
Electricity	kWh	0.084	0.003413
Propane	Gallon	2.600	0.090000
Wood	Cord	144.000	20.200000
Coal	Ton	160.000	21.000000
Kerosene	Gallon	3.710	0.130000
Other	MMBtu	6.250	1.000000

FUEL COSTS

by Name [dropdown]

1 of 2 Copy Del

Additional details about this material

Copy

Choose ACME County, Indiana

Fuel Conversions Needed in the Weatherization Assistant

Mark Ternes
Oak Ridge National Laboratory

January 31, 2006

NEAT AND MHEA UTILITY BILLS TAB

NEAT AND MHEA require that natural gas billing data be entered in units of therms (data on bulk fuels such as propane, kerosene, and fuel oil may also be entered but should be used with caution because the amount of fuel delivered may not be equal to the amount of fuel consumed since the previous delivery). To convert energy use to natural gas, propane, kerosene, and fuel oil into units of therms, do the following:

1. Multiply energy use of natural gas in units of MBtu by 10.0 to obtain therms
2. Multiply energy use of natural gas in units of Mcf by 10.25 to obtain therms
3. Multiply energy use of propane in units of gallons by 0.916 to obtain therms
4. Multiply energy use of kerosene in units of gallons by 1.35 to obtain therms
5. Multiply energy use of fuel oil in units of gallons by 1.4 to obtain therms

For example, if a monthly bill said that 7 MBtus of natural gas had been used, then this is equivalent to a use of 70 therms of natural gas. If 150 gallons of propane were delivered to a house, this would be equivalent to a delivery of 137.4 therms of energy.

FUEL COSTS IN THE SETUP LIBRARY

NEAT and MHEA need costs for natural gas to be in units of \$/Mcf. To convert the cost of natural gas from \$/MBtu or \$/therm to \$/Mcf, do the following:

1. Multiply \$/MBtu by 1.025 to obtain the cost in units of \$/Mcf.
2. Multiply \$/therm by 10.25 to obtain the cost in units of \$/Mcf.

For example, if the cost of natural gas is \$8.00/ MBtu, then this is equivalent to a cost of \$8.20/Mcf. If the cost of natural gas is \$0.75/therm, then this is equivalent to a cost of \$7.69/Mcf.

Sources:

U.S. Department of Energy from Cornell paper: kerosene (No. 1 fuel oil) – 134,000 Btu/gal; No. 2 fuel oil – 140,000 Btu/gal; and propane – 91,600 Btu/gal.

ASHRAE Fundamentals, page 17.4: No. 1 fuel oil – 134,950 Btu/gal (midpoint of range); No. 2 fuel oil – 139,400 Btu/gal (midpoint of range); and natural gas 1025 Btu/ft³ (1.025 MBtu/Mcf).

DOE 2004 Buildings Energy Databook, Table 4.1.1 , Note 3: average natural gas price was \$7.15/MBtu (\$7.40 /Mcf), so that Mcf=1.035 MBtu.

Creating a NEAT Audit

Step # 5 – The NEAT Audit Button, Audit Information Tab

In order to start a Site Built NEAT Audit, return to the Main Menu Page.
If you wish to perform a MHEA Audit, you must go to [Step #16 on page 18](#)

It is important to remember that you will always have to enter at least the minimum client information for a client before proceeding to enter audit information.

- 15.) From the Main Menu Page, click on the **Site Built (NEAT) button** to begin a Site Built Audit. The **Audit Information Tab** will open.
 - A.) The **Audit Name** will display the words **Audit (1)** if this is the first time you have run an audit for this client.
 - B.) Highlight and Copy the **Client ID** and paste it in the **Audit Name** field directly above it, then add the Number (1) in parentheses after the client's name to indicate this is the 1st audit for this client.
 - C.) Choose your name from the **Auditor** drop down box.
 - D.) Choose the correct **Setup Library** Cost from the drop down box. This must match your previous choice for this client's County on the Client Information Page (Step 2, #6C) for Costs A, B, or C.
 - E.) Choose the correct **Fuel Cost Library** from the drop down box.
 - F.) The IBA **Supply Library** is the Default and Only Choice for the Supply Library.
 - G.) For the **Weather File** choose one of the four Indiana cities listed that is closest to your clients home. If your client's home is closer to a listed city in another state choose that city.
 - H.) Ignore **Billing Adjustment** and **Impute Cooling**.
 - I.) Enter the number of **Conditioned Stories**.
 - J.) Enter the total "conditioned" **Floor Area** in square feet of the home. Place your cursor in this field and press F1 for more information from the Help Menu.
 - K.) Now click the third Tab at the top of the Screen – **The Shell Tab**

Step # 6 – The Shell Tab, Walls Tab

IMPORTANT: You MUST Treat Each Wall on Each Story as a Separate Wall

16.) Clicking on the **Shell Tab** will also open the **Wall Tab**.

- A.) In the **Wall Code** field enter the letters WL followed by the number 1 and a capital letter indicating the directional orientation of the wall (example: WL1N).
- B.) Choose a **Wall Type** from the drop down box list.
- C.) If you chose a balloon frame or platform frame **Wall Type**, you must now choose a **Stud Size**.
- D.) Choose an **Exterior Type** from the dropdown box list.
- E.) Choose what this wall is **Exposed To** from the drop down box list.
- F.) Choose the wall's **Orientation** from the drop down box list.
- G.) Enter the **Gross Area** in square feet of this wall.
- H.) Enter the number 1 in the **Measure #** drop down box field. If all walls are clad in a manner identical to this wall, then each wall will have measure # 1. For example, if the measure # 1 wall is brick, then successive walls that have wood siding could be designated as measure # 2 if you want NEAT to evaluate the wood clad wall separate from the brick wall. If all walls, regardless of cladding, are to be evaluated equally give all walls measure # 1. Additional measures can be used as needed.
- I.) Choose the **Type of Existing Insulation** from the drop down box field.
- J.) In the **R Value** field, enter the R value of the existing insulation.
- K.) Choose the **Type of Insulation to be Added** to this wall should insulation be recommended. Select "NONE" if conditions prohibit insulating the wall or if you do not intend to insulate this wall.
- L.) If under **Added Insulation** you chose **Blown Cellulose** and your NEAT Audit recommends insulation for this wall, the software will figure your particular Cost Center costs for the materials and labor based on IBA item # IUW-6230 (Insulating an Uninsulated First Story Wall to R-15 by installing high density cellulose and sealing and painting plugs). Should insulating this wall require additional measures like working on a 2nd Story wall or removing and replacing wood, vinyl or aluminum siding, then additional costs for labor per square foot must be added in this **Additional Cost (\$)** Field. Use the table below to identify the additional cost per square foot. Multiply that cost X the number of square feet on this wall and enter the resulting cost in the **Additional Cost (\$)** Field.

Labor Costs for Additional Cost (\$) Field

IUW-6235 Install high density cellulose 2nd story seal & paint plugs / sq. ft.

IUW-6240 Remove alum. /wood siding and dense pack 1st story / sq. ft.

IUW-6245 Remove alum. /wood siding and dense pack 2nd story / sq. ft.

	Labor "A"	Labor "B"	Labor "C"
IUW-6235	\$ 0.10	\$ 0.10	\$ 0.13
IUW-6240	\$ 0.23	\$ 0.23	\$ 0.25
IUW-6245	\$ 0.28	\$ 0.30	\$ 0.32

- M.) Locate the **WALL** box in the lower left corner of the form. Click on the **New** button to create each new wall in order to complete the house. Alternatively, you may click the **Copy** button to create a similar or identical wall (clicking the copy button will create an identical wall, allowing you to re-name the wall code for the new wall and make changes as needed). In the **Wall Code** field, enter the letters **WL** followed by a number and capital letter indicating the directional orientation for each respective wall. Follow procedures B through L to complete each additional wall. Remember, you must treat each wall on each story as a different wall (example: a square two story house would have four walls on the first floor and four walls on the second floor for a total of eight total walls described).

Step # 7 – The Shell Tab, Windows Tab

IMPORTANT: Placing your cursor in any window field and striking the F1 key will display further information about that field.

17.) Click on the **Windows** tab.

- A.) In the **Window Code** field enter the letters WD followed by the number 1 for the first window on Wall 1.
- B.) Choose a **Window Type** from the drop down box list. Placing your cursor in the window type field and striking the **F1** key will display window descriptions.
- C.) Choose a window **Frame Type** from the drop down box list.
- D.) Choose a **Glazing Type** from the drop down box list.
- E.) Choose an **Interior Shading** Type from the drop down box list.
- F.) Enter a percentage number in the **Exterior Shading** field. The default is 20%.
- G.) Choose a **Leakiness** value from the drop down box list.
- H.) **Average size** - Enter the **Width (in inches)** and **Height (in inches)** of this window in the fields provided.
- I.) **Number on this Wall** – Choose a **Wall Code** for this window from the drop down box. Enter the number of windows identical to this window on this wall (“identical” means not only that the window is the same size but has all of the same attributes as the subject window – for example: same leakiness, same glazing type etc.).
- J.) **Retrofit Options** – Depending on your intentions for each individual window that needs some kind of attention or repair, choose **Weatherize, Replace, Add Storm** or **Evaluate None** from the drop down box list. **DO NOT** Choose **Evaluate All** or **Replace with Low E**. If the **Additional Cost** section appears enter the cost you expect to include on your IBA Work Order for each Replacement or Repair.
CAUTION: Windows that are to be Weatherized, Replaced or have Storms added **MUST NOT** be included with Other Non-Repair or Non-Replace Windows Under the **Number on this Wall** Section.
WARNING: DO NOT DUPLICATE COSTS - Do NOT include any of the Measures or costs you enter in this **Step #7** in your selection of **User Defined Measures** in the following **Step #15 – The Itemized Costs Tab**.
- K.) Locate the **WINDOW** box in the lower left corner of the form. Click on the **New** button to create each new window in order to complete the house. In the **Window Code** field, enter the letters **WD** followed by the number for each respective window. Follow procedures B through J to complete each additional window. Remember, windows that are identical to windows that have already been described need not be re-entered if they have already been included in the **Number on this Wall / Number** field.
- L.) In creating new windows you can copy a previously entered window by:
 - a.) Using the drop down box and **Copy** button that appears in the lower left corner of the form, you can make a copy of windows that have already been described and adjust those specifications that are different for the new window.
- M.) If you make a mistake or wish to delete an entire entry, you can delete that entry using the drop down box and **Delete (Del)** button that appears in the lower left corner of the **Windows** form.

Step # 8 – The Shell Tab, Doors Tab

IMPORTANT: Placing your cursor in any door field and striking the F1 key will display further information about that field.

18.) Click on the **Doors Tab**.

- A.) In the **Door Code** field enter the letters **DR** followed by the number **1** for your first door.
- B.) Choose a **Door Type** from the dropdown list box.
- C.) Enter the **Area** in **square feet** of this door.
- D.) Choose storm door condition or none from the drop down box list.
- E.) In the **Optional Dimensions** section enter the **Width (in)** and **Height (in)** of the door.
- F.) **Number on this Wall** – Choose a **Wall Code** for this door from the drop down box. Enter the number of doors identical to this door on this wall (“identical” means not only that the door is the same size but has all of the same attributes as the subject door – for example: same door type, same construction etc.).
- G.) Locate the **DOOR** box in the lower left corner of the form. Click on the **New** button to create each new door in order to complete the house. In the **Door Code** field, enter the letters **DR** followed by the number for each respective door. Follow procedures B through F to complete each additional door. Remember, doors that are identical to doors that have already been described need not be re-entered if they have already been included in the **Number on this Wall / Number** field.
- H.) In creating new doors you can copy a previously entered door by using the drop down box and **Copy** button that appears in the lower left corner of the door form. You can make a copy of doors that have already been described & adjust those specifications that are different for the new door.
- I.) If a door has a window in it, treat the door as a door without a window and enter the window portion of the door under the window tab. If the door is a sliding glass door, enter it as a door.
- J.) If you make a mistake or wish to delete an entire door entry, you can delete that entry using the drop down box and **Delete (Del)** button that appears in the lower left corner of the **Doors** form.

Step # 9 – The Shell Tab, Unfinished Attics Tab

19.) Click on the **Unfinished Attics** tab.

- A.) In the **Attic Code** field, enter the letters **UA** followed by the number **1** for your first attic.
- B.) Choose an **Attic Type** from the drop down box list.
- C.) Enter the **Joist Spacing** in inches.
- D.) Enter the square feet of the Attic in the **Area** field.
- E.) Choose the **Existing Insulation Type** from the drop down box.
- F.) Enter the **Depth in Inches** of the existing insulation.
- G.) In the **Added Insulation** section, choose **Blown Cellulose** for the **Type of Insulation to be Added** to this attic should insulation be recommended. Select “**NONE**” if conditions prohibit insulating the attic or if you do not intend to insulate this attic. Select **Measure # 1**. Enter in the **Added R Value** field the R Value **Number only**. You can ignore the **Max. Depth (in)** and **Additional Cost (\$)** fields.
- H.) Locate the **Unfinished Attic** box in the lower left corner of the form. Click on the **New** button to create each new attic. In the **Attic Code** field, enter the letters **UA** followed by the number for each respective attic. Follow procedures B through G to complete each additional attic.
- I.) If you make a mistake or wish to delete an entire attic entry, delete that entry using the drop down box and **Delete (Del)** button appearing in the lower left corner of the **Unfinished Attics** form.

Step # 10 – The Shell Tab, Finished Attics Tab

20.) Click on the **Finished Attics** tab.

- A.) In the **Attic Code** field, enter the letters **FA** followed by the number **1** for your first attic.
- B.) Choose an **Attic Area Type** from the drop down box list.
- C.) Choose an **Attic Floor Type** from the drop down box list.
- D.) Enter the square feet of the Attic in the **Area** field.
- E.) Choose the **Existing Insulation Type** from the drop down box.
- F.) Enter the **Depth in Inches** of the existing insulation.
- G.) In the **Added Insulation** section, choose **Blown Cellulose** for the **Type of Insulation to be Added** to this attic should insulation be recommended. Select “**NONE**” if conditions prohibit insulating the attic or if you do not intend to insulate this attic. Select **Measure # 1**. Enter in the **Added R Value** field the R Value **Number only**. You can ignore the **Max. Depth (in)** and **Additional Cost (\$)** fields.
- H.) Locate the **Finished Attic** box in the lower left corner of the form. Click on the **New** button to create each new attic in order to complete the house. In the **Attic Code** field, enter the letters **FA** followed by the number for each respective attic. Follow procedures B through G to complete each additional attic.
- I.) If you make a mistake or wish to delete an entire attic entry, you can delete that entry using the drop down box and **Delete (Del)** button that appears in the lower left corner of the **Finished Attics** form.

Step # 11 – The Shell Tab, Foundations Tab

21.) Click on the **Foundations** tab.

- A.) In the **Foundations Code** field, enter the letters **FD** followed by the number **1** for your first foundation.
- B.) Choose a **Foundation Type** from the drop down box list.
- C.) Enter the number **1** in the **Measure #** drop down box field. If all foundation walls are identical, then the entire foundation will have measure # 1. If there are differences in the foundation you should create a second foundation code after completing the first foundation by clicking the **New** button in the lower left corner of the form and entering a new foundation code and specifications for that portion of the foundation.
- D.) Complete the **Floor** section and Choose **None** for **Added Insulation**. Ignore **Addnl. Costs (\$)**.
- E.) Complete the **Sill** Section and choose the correct **Added Insulation** if you plan to add some. Ignore **Additional Costs (\$)** field.
- F.) Complete the **Foundation Wall** section and choose the correct **Added Insulation** if you plan to add some. Ignore **Rigid FoamBoard**. Ignore the **Additional Cost (\$)** field.
- G.) If you make a mistake or wish to delete an entire foundation entry, you can delete that entry using the drop down box and **Delete (Del)** button that appears in the lower left corner of the **Foundations** form.

Step # 12 – The Heating Tab

22.) Click on the Main Number 4 tab – the **Heating** Tab.

- A.) In the **System Code** field, enter the letters **SC** followed by the number **1** for your first heating system.
- B.) Choose an **Equipment Type** from the dropdown box list for this system.
- C.) Choose a **Fuel Type** from the dropdown box list for this system.
- D.) If after entering the **Equipment Type** a location drop down box appears, choose a **Location** for this furnace. Also enter the **Heat Supplied (%)** for this equipment if different than 100%.
- E.) Check the **Primary System** check box if this is the primary system.
- F.) Enter the manufacturer's name in the **Manufacturer** field.
- G.) Enter the model number in the **Model** field.
- H.) Check the **Eliminate with Primary System Replacement** check box if applicable. See Help Menu.
- I.) Click on the large **Uninsulated Supply Ducts** button in the upper right of the form. In the resulting window, choose the **Location** of the **Uninsulated Supply Ducts** from the drop down box. In the **Uninsulated Supply Ducts Sections** box, choose the **Type(s)** of ducts that are present and enter their corresponding parameters in feet and inches as requested.
- J.) Populate all open fields in the **Required Heating System Details** box for your equipment type.
- K.) **Replacement System** – Choose a **Replacement System** from the **Options** drop down box. Limit your choice to only one of the following: Either “Standard Efficiency Replacement Mandatory” or “High Efficiency Replacement Mandatory”. Choose a **Fuel** from the drop down box. Check the **Include in SIR** check box. Populate the fields for **System AFUE, Labor Cost (\$) and Material Cost (\$)**. If you wish to evaluate both the Standard Efficiency Furnace and the High Efficiency Furnace you **MUST** Run a separate Audit (“**Run Audit**”) for each furnace. Do **NOT** run the Evaluate All Option for these Furnaces. They **MUST** be evaluated separately.
- L.) **Optional Heating System Details** – the six buttons following this category are optional. It is not necessary to complete these sections. If you have already collected information pertinent to the Optional Heating System Details as a result of your home inspection and you wish to include the information in this report it is your option to do so.

Step # 13 – The Ducts / Infiltration Tab

- 23.) Click on the Main Number 6 tab – **The Ducts / Infiltration** tab. The **Air and Duct Leakages** tab will appear.
- A.) Do **NOT** Check the **Evaluate Duct Sealing** box.
 - B.) In the **Whole House Blower Door Measurements** section, enter the **Air Leakage Rate (cfm)** field with your initial blower door reading at 50 pascals in the **Before Weatherization** column. (Note: Both pascals values in columns 1 and 2 should read 50. Use the can't reach 50 conversion factor if unable to reach 50 pascals when taking your blower door readings).
 - C.) Enter the **Target Air Leakage Rate** at 50 pascals in the **After Weatherization** column. This Target number should **NOT** be the House MVR, instead estimate a Rate (cfm) that is slightly less than a realistic desired value that you believe can be achieved by duct sealing and whole house air sealing. This value should be considered an achievable minimum reduction value.
 - D.) In the **Costs** section, enter in the **Infiltration Reduction (\$)** field, the total combined cost for your IBA work order for Sealing and Insulating the Supply and Return Ducts and All Structural Air Sealing. Include all combined costs for work that includes Caulking, Blower Door Directed Air Sealing, Mastic Sealing, Sealing with Foam, Wrapping Ducts with Foam Tape or any other Measure that Seals the Home's Ducts and Structural Leaks. Enter the IBA Item Numbers for these Measures in the **Comment** Editor by clicking the Comment button. **WARNING: DO NOT DUPLICATE COSTS - Do NOT** include any of the Measures or Costs you enter in this **Step#13**, in your selection of **User Defined Measures** in the subsequent **Step #15-The Itemized Costs Tab**.

Step # 14 – The Baseloads Tab, Water Heating Tab, Lighting Systems Tab

- 24.) Click on the Main Number 7 Tab – the **Baseloads** tab. The **Water Heating** tab will appear.
- A.) In the **Existing Equipment** section, choose the Water Heater **Manufacturer** from the drop down box.
 - B.) Populate the balance of the fields in the **Existing Equipment, Original Tank Insulation and Shower Heads** sections. For shower head Avg. GPM use the default of 6.0 GPM. For **Shower Use (min./day)** use the default of 10 minutes per Occupant.
 - C.) Ignore the **Optional Water Heater Details** at the bottom of this form.
 - D.) **Replacement** section - If a replacement Water Heater is recommended by the Auditor, choose a Water Heater from the **Pick from Library** drop down box. The **Installation Cost** field will be populated when you choose a Water Heater. Ignore the **Additional Cost** field. If replacement is required, place a check mark in the **Replacement Required** check box and the resulting **Include in SIR** box.
- 25.) Click on Sub Number 3 Tab – the **Lighting Systems** tab.
- A.) In the **Existing Incandescent Light** section, enter the letters **LC** in the **Light Code** field followed by the number **1**.
 - B.) **Room** field - choose **Other** from the drop down box to represent the entire house.
 - C.) **Location** field - choose **Other** from the drop down box to represent the entire house.
 - D.) **Lamp Type** field - choose **Other** from the drop down box to represent the entire house.
 - E.) Populate the **Quantity** field with the total number of bulbs to be replaced in the home. In the **Size (watts)** field enter the number 75. In the **Use (hrs./day)** field enter the number 6. Remember, these entries are for the existing (pre-retrofit) lighting currently in place in the home.
 - F.) **Replacement Compact Fluorescent Light (CFL)** section – Populate the **CFL Size (watts)** field with the number 18. Ignore the **Additional Cost (\$/bulb)** field.
 - G.) You will make only one light code entry for the entire house. If you make a mistake or wish to delete this entry, you can delete that entry using the drop down box and **Delete (Del)** button that appears in the lower left corner of the **Lighting Systems** form.

Step # 15 – The Itemized Costs Tab

26.) Click on the main number 9 tab - **Itemized Costs**.

A.) Creating a User Defined Measure List

Locate the **Copy from User Defined Measures** drop down box in the upper left corner of the **Itemized Costs** screen. Click the drop down box and choose as your first measure, the first item - Order # 201 MeasureName (WH-3015 Install Faucet Aerators). By choosing Order # 201, you have created your first itemized cost with a measure name that appears in the **Measure Name** field. Notice that the **Cost (\$)** field is populated with a dollar amount for this measure. This dollar amount includes both materials and labor costs for one aerator your particular cost center (A, B, or C). Notice that the **Include in SIR** checkbox to the right of the **Cost (\$)** field is checked. **DO NOT** change this setting. Ignore the **Material** field, the **Annual Energy Savings** field and the **Units** field. This first faucet aerator measure is an IBA required item and should only be deleted if your client refuses or already has aerators installed.

If you wish to **Delete** this Faucet Aerator measure from your list of itemized costs at this time you may do so by clicking the delete (**Del**) button at the **BOTTOM** of the **Itemized Costs** screen.

If you wish to **Keep** this Faucet Aerator in your list and **Add a Second** Faucet Aerator you must complete **One** of the following two Options:

Option A: Change the **Cost (\$)** associated with the measure to reflect two Aerators. Unfortunately, there is not a Quantity field in this part of the software so you must double the cost in the **Cost (\$)** field to reflect the cost for two faucet aerators.

Option B: Use the **COPYING A MEASURE** instruction from paragraph E.) below. You **cannot** choose a measure twice from the **Copy from User Defined Measure** drop down box at the **TOP** of the screen. If you try to do so, you will receive error messages and will need to back out of your entries by striking the **esc** key.

B.) The New Button – Adding New Measures & IBA Required Measures

Now locate the **ITEMIZED COST** box at the **BOTTOM** of the screen. Click the **New** button to choose your second user defined measure. Choose another measure from the **Copy from User Defined Measures** drop down box at the **TOP** of the screen that you intend to eventually include on your IBA work order. The first four Measures (Order number 201 through 204) are actually duplicates in the measures list and are grouped here because they are measures that must be considered and are required by the IBA for most audits. You may choose these measures now (from this short list of 4 if applicable) or you may add these measures at a later point in the process either from this list of 4 or from their respective locations in the complete list of measures. Other IBA Required Measures (such as Low Flow Shower Heads, Water Heater Blanket and Pipe Insulation and Compact Fluorescent Bulbs) should be automatically added by the software if they are not already installed in the home.

You can view the measures you have chosen by clicking on the **by Description** drop down box in the **ITEMIZED COST** box at the **BOTTOM** of the screen.

WARNING: DO NOT DUPLICATE COSTS - Do NOT include any of the Measures or costs you entered in previous **Steps #5 through Step #14** in your selection of **User Defined Measures**.

C.) Accurate Pricing of USER DEFINED MEASURES-

You **MUST** remember the following **Two Points** when pricing **User Defined Measures**:

Point A: USER DEFINED MEASURE costs that APPEAR in the COST field

Because there is not a **Quantity** field in this section of the software, **User Defined Measures** with costs that automatically **APPEAR IN THE COST(\$)** FIELD are priced **per Each** and have Material and Labor included in the one cost. You **MUST** multiply this Measure cost by the Number of Units required if more than one unit is required. This will reflect the **Total Cost** for the item. Enter the new calculated cost in the **Cost (\$)** field by double clicking on the existing price and changing the price to reflect the larger quantity if the quantity desired is greater than one.

Note: Double Check your **by Description** drop down list for Measures that are Special Circumstance (or with a per hourly, /stop in attic, /caulk, /sheet, or /2" foam board ending) prior to running your audit. These measures typically require doubling or tripling the **Costs (\$)** field in order to enter accurate costs.

Point B: USER DEFINED MEASURE costs that DO NOT APPEAR in the COST field

When choosing your User Defined Measures you will notice that some of the measures have a Materials Cost in the Comment column to the right of the measure. If you choose these measures you will see **ZERO** dollars in the **Cost (\$)** field. You will find the cost for these measures in the large **Comment** field at the **BOTTOM** of the **Itemized Costs** screen. For these Measures you must calculate the total cost for materials and labor separately, combine the two costs and enter the total in the **Cost (\$)** field below the **Measure Name** by typing over the Zero dollars (\$0.00).

D.) **DELETING A MEASURE.**

Once you have added your second measure you may delete the WH-3015 Install Faucet Aerators measure from your list if you so choose. Delete this or any other measure by first choosing the measure from the **ITEMIZED COST by Description** drop down box at the **BOTTOM** of the screen, and then click the delete (**Del**) button. The Measure will be removed from the **by Description** list.

E.) **COPYING A MEASURE.**

If you wish to have a measure included twice in your list follow this instruction. After you have chosen the measure from the **Copy from User Defined Measure** drop down box at the **TOP** of the screen for the first time, you may then choose the same measure from the **ITEMIZED COST by Description** drop down box at the **BOTTOM** of the screen and click the **Copy** button. The measure will appear a second time in your list followed by a number in parentheses.

CAUTION NOTE: You **cannot** choose a measure twice from the **Copy from User Defined Measure** drop down box at the **TOP** of the screen. If you try to do so, you will see an error message & will need to back out of your entry by striking the **esc** key.

F.) **Creating a Special Circumstance USER DEFINED MEASURE**

To create a **Special Circumstance User Defined Measure** you will Click the **New** button and then choose a Special Circumstance Measure from the **Copy from User Defined Measures** drop down box. Enter the combined cost for both Materials and Labor in the **Cost (\$)** field. Enter materials required for the Measure in the **Material** field. You may enter a brief Description of the Measure after the word Circumstance in the **Measure Name** field. If you wish, you may enter a more detailed description or explanation in the **Comment** field or **Comment** Pop-up Window by clicking on the **Comment** button.

G.) **All Measures MUST be Included in SIR (Savings Investment Ratio)**

Notice that the **Include in SIR** checkbox to the right of the **Cost (\$)** field is checked each time you add a new measure. This **SIR** checkbox must be checked on every measure that you add. DO NOT change this setting. Ignore the **Material** field, the **Annual Energy Savings** field and the **Units** field.

H.) **NEAT “BUILT IN” MEASURES and the Whole House SIR**

Some measures that you intend to include on your IBA work order for this client will be selected from the **Copy from User Defined Measures** drop down box at the **TOP** of the **Itemized Costs** screen. However, not all measures you provided for running this audit are classified as **User Defined Measures**. The most valuable **Energy Saving Measures** you provided are NOT “User Defined”, instead they were “**built-in**” to NEAT as you enter the home’s specifications, so the software can now evaluate the cost effectiveness of performing the **Energy Saving Measures**. These **Energy Saving Measures** mostly include Insulation Measures, Furnace Replacement, Low Flow Shower Heads, Water Heater Blanket, Water Heater Pipe Insulation, Compact Fluorescent Bulb Replacement and Water Heater Replacement. Even if you expect to eventually have these **Energy Saving Measures** on your IBA Work Order, they will not be available for you to choose from in the **Copy from User Defined Measures** drop down list. However, they may be included by NEAT in your “**Run Audit**” **Recommended Measures Report**. Furthermore, ALL MEASURES, both the **Energy Saving Measures** and your **User Defined Measures** will be part of the **Whole House SIR** (Savings Investment Ratio) and the whole house **NEAT Recommended Measures Report**. This Report will evaluate the **SIR** of the Furnace Replacement and other measures as they relate to the **Whole House SIR**. If a measure you intended to add is not present in the **User Defined Measures**, it will be automatically “considered” by NEAT to be included in the **Recommended Measures Report if you have completed your audit data entry completely**. If a measure does not appear in the **User Defined Measures** and you wish to have it considered for your client, you must add it to your **User Defined Measure** list as a Special Circumstance with Accurate Costs so it can be included in the **Whole House SIR** and evaluated in your final “**Run Audit**” in order to be part of an IBA work order that meets IBA Budget guidelines.

I.) **COMPLETING YOUR AUDIT**

Once you have completed choosing your **User Defined Measures** you should run this audit by clicking the **Run Audit** button in the upper right corner of the **Itemized Costs** screen. If after viewing the completed **Recommended Measures Report**, you wish to change user defined measures or any of the other Tabbed Sections, you may do so by returning to that Tab, making your changes and clicking the **Run Audit** button a second time on that Tab Page. Using this procedure will overwrite your original **Recommended Measures Report** and create your new **Recommended Measures Report** with the same **Audit Name** and (#) as your original audit. Alternatively, if you wish to have a different second or third **Recommended Measures Report** for comparison to your first **Recommended Measures Report**, you should make your changes in whichever Tabbed Section you choose and then return to the **Audit Information Tab** and Click the **Copy** button in the lower left corner. NEAT will automatically copy your **Audit Name** and assign after the Client’s Name, the next available number [e.g.,(2)] to the new audit. Click the **Run Audit** button on the **Audit Information** form to run the new **Recommended Measures Report**.

J.) **THE RECOMMENDED MEASURE PDF**

Once you have completed your final **Run Audit**, you will print the **Recommended Measures Report** and create a (.pdf) file using Adobe Acrobat or PDF995¹ that can be uploaded to the IBA web site as you normally would for other client reports or files.

K.) **INTERPRETING THE NEAT RECOMMENDED MEASURES REPORT– See Page 28.**

¹PDF995 is a free pdf document creation software that can be downloaded at www.PDF995.com

Creating a MHEA Audit

Step # 16 – The MHEA Audit Button, Audit Information Tab

Before Starting a MHEA Audit, you must complete steps # 1 through 4 in these instructions. Once steps 1 through 4 have been completed, start a Mobile Home MHEA Audit by returning to the Main Menu Page.

It is important to remember that you will always have to enter at least the minimum client information for a client before proceeding to enter audit information.

- 27.) From the Main Menu Page, click on the **Mobile Home (MHEA) button** to begin a Mobile Home Audit. Then click on the **Audit Information Tab**.
- A.) The **Audit Name** will display the words **Audit (1)** if this is the first time you have run an audit for this client.
 - B.) Highlight and Copy the **Client ID** and paste it in the **Audit Name** field directly above it, then add the Number (1) in parentheses after the client's name to indicate this is the 1st audit for this client.
 - C.) Choose your name from the **Auditor** drop down box.
 - D.) Choose the correct **Setup Library Cost** from the drop down box. This must match your previous Choices for Costs A, B, or C.
 - E.) Choose the correct **Fuel Cost Library** from the drop down box.
 - F.) The IBA **Supply Library** is the Default and Only Choice for the Supply Library.
 - G.) For the **Weather File** choose one of the four Indiana cities listed that is closest to your clients home. If your client's home is closer to a listed city in another state choose that city.
 - H.) Ignore **Billing Adjustment**.
 - I.) Enter the **Length (ft)**, **Width (ft)**, and **Exterior Wall Height (ft)** for the Mobile Home in their respective fields. These measurements apply only to the Mobile Home, NOT an Addition to the home. DO NOT enter dimensions for an Addition to the Home until you complete **Step# 22** and **Step#26** below.
 - J.) Choose a **Wind Shielding** value from the drop down box list.
 - K.) Choose a **Home Leakiness** value from the drop down box list.
 - L.) Check the **Outdoor Water Heater Closet** check box (if applicable).
 - M.) Now click the third Tab at the top of the Screen – **The Shell Tab**.

Step # 17 – The Shell Tab, Walls Tab

- 28.) Click on the **Shell Tab**, then click on the **Wall Tab**.
- A.) Choose a **Wall Stud Size** from the drop down box list.
 - B.) Choose an **Orientation of Long Wall** from the drop down box list.
 - C.) Choose a **Wall Ventilation** from the drop down box list.
 - D.) **Existing Insulation** - Enter a **Batt/Blanket (in)**, **Loose Fill (in.)** or **Foam Core (in)** value in the appropriate field.
 - E.) Enter an **Uninsulatable Wall Area (sq ft)** value (if applicable).
 - F.) Place your cursor in the **Additional Cost (\$)** field and Strike the F1 key for Instruction.
 - G.) **Carport / Porch Roof** – Enter **Length (ft)** and **Width (ft)** in their respective fields.

Step # 18 – The Shell Tab, Windows Tab

IMPORTANT: Placing your cursor in any window field and striking the F1 key will display further information about that field.

29.) Click on the **Windows** tab.

- A.) In the **Window Code** field enter the letters **WD** followed by the number **1** for the first window.
- B.) Choose a **Window Type** from the drop down box list. Placing your cursor in the window type field and striking the **F1** key will display window descriptions.
- C.) Choose a window **Frame Type** from the drop down box list.
- D.) Choose a **Glazing Type** from the drop down box list.
- E.) Choose an **Interior Shading** Type from the drop down box list.
- F.) Enter a percentage number in the **Exterior Shading** field. The default is 20%.
- G.) Choose a **Leakiness** value from the drop down box list.
- H.) **Average size** - Enter the **Width (in inches)** and **Height (in inches)** of this window in the fields provided.
- I.) **Number Facing** – Enter the number of windows identical to this window facing **North, South, East** or **West** (“identical” means not only that the window is the same size but has all of the same attributes as the subject window – for example: same leakiness, same glazing type etc.).
- J.) **Retrofit Options** – Depending on your intentions for each individual window that needs some kind of attention or repair, choose **Weatherize, Replace, Add Glass Storm, Add Plastic Storm** or **Evaluate None** from the drop down box list. **DO NOT** Choose **Evaluate All** or **Replace with Low E**. If the **Additional Cost** section appears enter the cost you expect to include on your IBA Work Order for each Replacement or Repair.
CAUTION: Windows that are to be Weatherized, Replaced or have Storms added **MUST NOT** be included with Other Non-Repair or Non-Replace Windows Under the **Number on this Wall** Section.
WARNING: DO NOT DUPLICATE COSTS - Do NOT include any of the Measures or costs you enter in this **Step #18** in your selection of **User Defined Measures** in the following **Step #30 – The Itemized Costs Tab**.
- K.) Locate the **WINDOW** box in the lower left corner of the form. Click on the **New** button to create each new window in order to complete the house. In the **Window Code** field, enter the letters **WD** followed by the number for each respective window. Follow procedures B through J to complete each additional window. Remember, windows that are identical to windows that have already been described need not be re-entered if they have already been included in the **Number Facing North, South, East or West** fields.
- L.) In creating new windows you can copy a previously entered window by:
 - a.) Using the drop down box and **Copy** button that appears in the lower left corner of the form, you can make a copy of windows that have already been described and adjust those specifications that are different for the new window.
- M.) If you make a mistake or wish to delete an entire window entry, you can delete that entry using the drop down box and **Delete (Del)** button that appears in the lower left corner of the **Windows** form.

Step # 19 – The Shell Tab, Doors Tab

IMPORTANT: Placing your cursor in any door field and striking the F1 key will display further information about that field.

30.) Click on the **Doors Tab**.

- A.) In the **Door Code** field enter the letters **DR** followed by the number **1** for your first door.
- B.) Choose a **Door Type** from the dropdown list box.
- C.) Check the **Storm Door Present** check box if applicable.
- D.) **Size** – Enter the **Width (in)** and **Height (in)** in their respective fields.
- E.) **Number Facing** – Enter the number of doors identical to this door facing **North, South, East or West** (“identical” means not only that the door is the same size but has all of the same attributes as the subject door – for example: same size, type etc.).
- F.) Check the **Replacement Door Required** check box (if applicable).
- G.) Place your cursor in the Additional Costs (\$) field and strike the F1 key for instruction.
- H.) Locate the **DOOR** box in the lower left corner of the form. Click on the **New** button to create each new door in order to complete the house. In the **Door Code** field, enter the letters **DR** followed by the number for each respective door. Follow procedures B through G to complete each additional door. Remember, doors that are identical to doors that have already been described need not be re-entered if they have already been included in the **Number Facing North, South, East or West** fields.
- I.) In creating new doors you can copy a previously entered door by:
 - a.) Using the drop down box and **Copy** button that appears in the lower left corner of the door form, you can make a copy of doors that have already been described and adjust those specifications that are different for the new door.
- J.) If a door has a window in it, treat the door as a door without a window and enter the window portion of the door under the window tab. If the door is a single pane or double pane sliding glass door, enter it as a door.
- K.) If you make a mistake or wish to delete an entire door entry, you can delete that entry using the drop down box and **Delete (Del)** button that appears in the lower left corner of the **Doors** form.

Step # 20 – The Shell Tab, Ceiling Tab

31.) Click on the **Ceiling** tab.

- A.) Choose a **Roof Type** from the drop down box list.
- B.) Choose a **Roof Color** from the drop down box list.
- C.) If you Chose a **Roof Type** that was:
 - Flat** – Choose the **Joist Size** from the drop down box list.
 - Bowstring** – Enter the **Height of Roof at Center (in)** in the field provided.
 - Pitched** - Enter the **Insulation to Add at Center (in)** in the field provided.
- D.) **Existing Insulation** - Enter a **Batt/Blanket (in), Loose Fill (in.)** or **Foam Core (in)** value in the appropriate field.
- E.) Enter the **Cathedral Ceiling (%)** of the home in the field provided.
- F.) If you included a percentage for a **Cathedral Ceiling**, choose a **Step Wall Orientation** from the drop down box list.
- G.) Place your cursor in the **Additional Cost (\$)** field and Strike the F1 key for Instruction.
- H.) If you make a mistake or wish to delete an entire entry, delete that entry using the **Delete (Del)** button appearing in the lower left corner of the **Ceiling** form.

Step # 21 – The Shell Tab, Floor Tab

32.) Click on the **Floor** tab.

- A.) Choose a **Floor Joist Direction** from the drop down box list.
- B.) Check the **Skirt Present** check box (if applicable).
- C.) **Floor Wing Description** – Populate the four fields in this section.
- D.) **Floor Belly Center Description** – Populate the seven fields in this section.
- E.) Place your cursor in the **Additional Cost (\$)** field and Strike the F1 key for Instruction.
- F.) If you make a mistake or wish to delete an entire entry, delete that entry using the **Delete (Del)** button appearing in the lower left corner of the **Floor** form.

Step # 22 – The Addition Tab, Walls Tab

33.) Click on the main **Addition** tab and then click on the sub **Wall** tab.

- A.) Choose a **Wall Stud Size** from the drop down box list.
- B.) Choose an **Addition Orientation** from the drop down box list.
- C.) Choose a **Wall Ventilation** from the drop down box list.
- D.) **Existing Insulation** - Enter a **Batt/Blanket (in)**, **Loose Fill (in.)** or **Foam Core (in)** value in the appropriate field.
- E.) Place your cursor in the **Additional Cost (\$)** field and Strike the F1 key for Instruction.
- F.) Choose a **Wall Configuration** from the drop down box list.
- G.) **Interior Wall** – Enter the **Max Height (ft)**, **Min Height (ft)** in their respective fields.
- H.) If you make a mistake or wish to delete an entire entry, delete that entry using the **Delete (Del)** button appearing in the lower left corner of the **Walls** form.

Step # 23 – The AdditionTab, Windows Tab

IMPORTANT: Placing your cursor in any window field and striking the F1 key will display further information about that field.

34.) Click on the **Windows** tab.

- A.) In the **Window Code** field enter the letters **WD** followed by the number **1** for the first window.
- B.) Choose a **Window Type** from the drop down box list. Placing your cursor in the window type field and striking the **F1** key will display window descriptions.
- C.) Choose a window **Frame Type** from the drop down box list.
- D.) Choose a **Glazing Type** from the drop down box list.
- E.) Choose an **Interior Shading** Type from the drop down box list.
- F.) Enter a percentage number in the **Exterior Shading** field. The default is 20%.
- G.) Choose a **Leakiness** value from the drop down box list.
- H.) **Average size** - Enter the **Width (in inches)** and **Height (in inches)** of this window in the fields provided.
- I.) **Number Facing** – Enter the number of windows identical to this window facing **North, South, East** or **West** (“identical” means not only that the window is the same size but has all of the same attributes as the subject window – for example: same leakiness, same glazing type etc.).

Continued on the next page

- J.) **Retrofit Options** – Depending on your intentions for each individual window that needs some kind of attention or repair, choose **Weatherize, Replace, Add Glass Storm, Add Plastic Storm** or **Evaluate None** from the drop down box list. **DO NOT** Choose **Evaluate All** or **Replace with Low E**. If the **Additional Cost** section appears, enter the cost you expect to include on your IBA Work Order for each Replacement or Repair.
CAUTION: Windows that are to be Weatherized, Replaced or have Storms added **MUST NOT** be included with Other Non-Repair or Non-Replace Windows Under the **Number on this Wall** Section.
WARNING: DO NOT DUPLICATE COSTS - Do NOT include any of the Measures or costs you enter in this **Step #23** in your selection of **User Defined Measures** in the following **Step #30 – The Itemized Costs Tab**.
- K.) Locate the **WINDOW** box in the lower left corner of the form. Click on the **New** button to create each new window in order to complete the house. In the **Window Code** field, enter the letters **WD** followed by the number for each respective window. Follow procedures B through J to complete each additional window. Remember, windows that are identical to windows that have already been described need not be re-entered if they have already been included in the **Number Facing North, South, East or West** fields.
- L.) In creating new windows you can copy a previously entered window by:
- a.) Using the drop down box and **Copy** button that appears in the lower left corner of the window form, you can make a copy of windows that have already been described and adjust those specifications that are different for the new window.
- M.) If you make a mistake or wish to delete an entire window entry, you can delete that entry using the drop down box and **Delete (Del)** button that appears in the lower left corner of the **Windows** form.

Step # 24 – The Addition Tab, Doors Tab

IMPORTANT: Placing your cursor in any door field and striking the F1 key will display further information about that field.

- 35.) Click on the **Doors Tab**.
- A.) In the **Door Code** field enter the letters **DR** followed by the number **1** for your first door.
 - B.) Choose a **Door Type** from the dropdown list box.
 - C.) Check the **Storm Door Present** check box if applicable.
 - D.) **Size** – Enter the **Width (in)** and **Height (in)** in their respective fields.
 - E.) **Number Facing** – Enter the number of doors identical to this door facing **North, South, East or West** (“identical” means not only that the door is the same size but has all of the same attributes as the subject door – for example: same size, type etc.).
 - F.) Check the **Replacement Door Required** check box (if applicable).
 - G.) Place your cursor in the **Additional Cost (\$)** field and Strike the F1 key for Instruction.
 - H.) Locate the **DOOR** box in the lower left corner of the form. Click on the **New** button to create each new door in order to complete the house. In the **Door Code** field, enter the letters **DR** followed by the number for each respective door. Follow procedures B through G to complete each additional door. Remember, doors that are identical to doors that have already been described need not be re-entered if they have already been included in the **Number Facing North, South, East or West** fields.
 - I.) In creating new doors you can copy a previously entered door by:
 - a.) Using the drop down box and **Copy** button that appears in the lower left corner of the door form, you can make a copy of doors that have already been described and adjust those specifications that are different for the new door.
 - J.) If a door has a window in it, treat the door as a door without a window and enter the window portion of the door under the window tab. If the door is a single pane or double pane sliding glass door, enter it as a door.
 - K.) If you make a mistake or wish to delete an entire door entry, you can delete that entry using the drop down box and **Delete (Del)** button that appears in the lower left corner of the **Doors** form.

Step # 25 – The Addition Tab, Ceiling Tab

36.) Click on the **Ceiling** tab.

- A.) Choose a **Joist Size** from the drop down box list.
- B.) Choose a **Roof Color** from the drop down box list.
- C.) Place your cursor in the **Additional Cost (\$)** field and Strike the F1 key for Instruction.
- D.) **Existing Insulation** - Enter a **Batt/Blanket (in)**, **Loose Fill (in.)** or **Foam Core (in.)** value in the appropriate field.
- E.) If you make a mistake or wish to delete an entire entry, delete that entry using the **Delete (Del)** button appearing in the lower left corner of the **Ceiling** form.

Step # 26 – The Addition Tab, Floor Tab

37.) Click on the **Floor** tab.

- A.) Choose a **Floor Type** from the drop down box list.
- B.) Choose a **Floor Joist Size** from the drop down box list.
- C.) **Floor Dimensions** – Enter the Length (ft) and Width (ft) in their respective fields.
- D.) Choose a **Batt / Blanket Location** from the drop down box list.
- E.) **Existing Insulation** – Enter a number in inches for **Batt / Blanket (in)**, **Loose Fill (in)** in their respective fields.
- F.) Enter the **Depth Available for Added Insulation (in.)** in the provided field.
- G.) If you make a mistake or wish to delete an entire entry, delete that entry using the **Delete (Del)** button appearing in the lower left corner of the **Floor** form.

Step # 27 – The Heating Tab, Primary Tab, Secondary Tab, Replacement Tab

38.) Click on the **Heating** tab and then click on the **Primary** tab.

- A.) Choose an **Equipment Type** from the drop down box list.
- B.) Choose a **Fuel Type** from the drop down box list.
- C.) Enter a value for the **Capacity (kBtu/hr)** in the field. Strike the F1 key for more information.
- D.) Enter a value for **Efficiency** in the field provided. Strike the F1 key for more information.
- E.) Choose **Efficiency Units** from the drop down box list.
- F.) Choose a **Duct Location** from the drop down box list.
- G.) Choose a **Duct Insulation Location** from the drop down box list.
- H.) Enter a **Heat Supplied (%)** in the field provided. Strike the F1 key for more information.
- I.) Click the **Programmable Thermostat** check box if a programmable thermostat is present.
- J.) You MUST ignore the **Tune-up Mandatory** check box. Do **NOT** check this box.
- K.) You may ignore the five (optional) test buttons located at the bottom of the form.
- L.) Complete the fields under the **Secondary** Tab and the **Replacement** Tab. Be sure to enter accurate costs for labor and materials for the replacement furnace.
- M.) Check the **Replacement Required** and **Include in SIR** Checkboxes.
- N.) If you make a mistake or wish to delete an entire entry, delete that entry using the **Delete (Del)** button appearing in the lower left corner of the **Primary, Secondary or Replacement** form.

Step # 28 – The Ducts / Infiltration Tab

- 39.) Click on the Main Number 7 tab – **The Ducts / Infiltration** tab.
Then click on the **Air and Duct Leakages** sub tab.
- A.) Do **NOT** Check the **Evaluate Duct Sealing** box.
 - B.) In the **Whole House Blower Door Measurements** section, enter the **Air Leakage Rate (cfm)** field with your initial blower door reading at 50 pascals in the **Before Weatherization** column. (Note: Both pascals values in columns 1 and 2 should read 50. Use the can't reach 50 conversion factor if unable to reach 50 pascals when taking your blower door readings).
 - C.) Enter the **Target Air Leakage Rate** at 50 pascals in the **After Weatherization** column. This Target number should **NOT** be the House MVR, instead estimate a Rate (cfm) that is slightly less than a realistic desired value that you believe can be achieved by duct sealing and whole house air sealing. This value should be considered an achievable minimum reduction value.
 - D.) In the **Costs** section, enter in the **Infiltration Reduction (\$)** field, the total combined cost for your IBA work order for Sealing and Insulating the Supply and Return Ducts and All Structural Air Sealing. Include all combined costs for work that includes Caulking, Blower Door Directed Air Sealing, Mastic Sealing, Sealing with Foam, Wrapping Ducts with Foam Tape or any other Measure that Seals the Home's Ducts and Structural Leaks. Enter the IBA Item Numbers for these Measures in the **Comment** Editor by clicking the Comment button. **WARNING: DO NOT DUPLICATE COSTS - Do NOT** include any of the Measures or Costs you enter in this **Step#28**, in your selection of **User Defined Measures** in the subsequent **Step #30-The Itemized Costs Tab**.

Step # 29 – The Baseloads Tab, Water Heating Tab, Lighting Systems Tab

- 40.) Click on the Main Number 7 Tab – the **Baseloads** tab. Then click on the **Water Heating** sub tab.
- A.) In the **Existing Equipment** section, choose the Water Heater **Manufacturer** from the drop down box.
 - B.) Populate the balance of the fields in the **Existing Equipment, Original Tank Insulation and Shower Heads** sections. For shower head Avg. GPM use the default of 6.0 GPM. For **Shower Use (min./ day)**, ask your client about usage, otherwise use the default of 10 minutes per Occupant.
 - C.) Ignore the **Optional Water Heater Details** at the bottom of this form.
 - D.) **Replacement** section - If a replacement Water Heater is recommended by the Auditor, choose a Water Heater from the **Pick from Library** drop down box. The **Installation Cost** field will be populated when you choose a Water Heater. Ignore the **Additional Cost** field. If replacement is required, place a check mark in the **Replacement Required** check box and the resulting **Include in SIR** box.
- 41.) Click on Sub Number 3 Tab – the **Lighting Systems** tab.
- A.) In the **Existing Incandescent Light** section, enter the letters **LC** in the **Light Code** field followed by the number **1**.
 - B.) **Room** field - choose **Other** from the drop down box to represent the entire house.
 - C.) **Location** field - choose **Other** from the drop down box to represent the entire house.
 - D.) **Lamp Type** field - choose **Other** from the drop down box to represent the entire house.
 - E.) Populate the **Quantity** field with the total number of bulbs to be replaced in the home. In the **Size (watts)** field enter the number 75. In the **Use (hrs./day)** field enter the number 6. Remember, these entries are for the existing (pre-retrofit) lighting currently in place in the home.
 - F.) **Replacement Compact Fluorescent Light (CFL)** section – Populate the **CFL Size (watts)** field with the number 18. Ignore the **Additional Cost (\$/bulb)** field.
 - G.) You will make only one light code entry for the entire house. If you make a mistake or wish to delete this entry, you can delete that entry using the drop down box and **Delete (Del)** button that appears in the lower left corner of the **Lighting Systems** form.

Step # 30 – The Itemized Costs Tab

42) Click on the main number 9 tab - **Itemized Costs** Tab.

A.) Creating a User Defined Measure List

Locate the **Copy from User Defined Measures** drop down box in the upper left corner of the **Itemized Costs** screen. Click the drop down box and choose as your first measure, the first item - Order # 201 MeasureName (WH-3015 Install Faucet Aerators). By choosing Order # 201, you have created your first itemized cost with a measure name that appears in the **Measure Name** field. Notice that the **Cost (\$)** field is populated with a dollar amount for this measure. This dollar amount includes both materials and labor costs for one aerator your particular cost center (A, B, or C). Notice that the **Include in SIR** checkbox to the right of the **Cost (\$)** field is checked. **DO NOT** change this setting. Ignore the **Material** field, the **Annual Energy Savings** field and the **Units** field. This first faucet aerator measure is an IBA required item and should only be deleted if your client refuses or already has aerators installed.

If you wish to **Delete** this Faucet Aerator measure from your list of itemized costs at this time you may do so by clicking the delete (**Del**) button at the **BOTTOM** of the **Itemized Costs** screen.

If you wish to **Keep** this Faucet Aerator in your list and **Add a Second** Faucet Aerator you must complete **One** of the following two Options:

Option A: Change the **Cost (\$)** associated with the measure to reflect two Aerators. Unfortunately, there is not a Quantity field in this part of the software so you must double the cost in the **Cost (\$)** field to reflect the cost for two faucet aerators.

Option B: Use the **COPYING A MEASURE** instruction from paragraph E.) below. You **cannot** choose a measure twice from the **Copy from User Defined Measure** drop down box at the **TOP** of the screen. If you try to do so, you will receive error messages and will need to back out of your entries by striking the **esc** key.

B.) The New Button – Adding New Measures & IBA Required Measures

Now locate the **ITEMIZED COST** box at the **BOTTOM** of the screen. Click the **New** button to choose your second user defined measure. Choose another measure from the **Copy from User Defined Measures** drop down box at the **TOP** of the screen that you intend to eventually include on your IBA work order. The first four Measures (Order number 201 through 204) are actually duplicates in the measures list and are grouped here because they are measures that must be considered and are required by the IBA for most audits. You may choose these measures now (from this short list of 4 if applicable) or you may add these measures at a later point in the process either from this list of 4 or from their respective locations in the complete list of measures. Other IBA Required Measures (such as Low Flow Shower Heads, Water Heater Blanket and Pipe Insulation and Compact Fluorescent Bulbs) should be automatically added by the software if they are not already installed in the home.

You can view the measures you have chosen by clicking on the **by Description** drop down box in the **ITEMIZED COST** box at the **BOTTOM** of the screen.

WARNING: DO NOT DUPLICATE COSTS - Do NOT include any of the Measures or costs you entered in previous **Steps #16 through Step #29** in your selection of **User Defined Measures**.

C.) Accurate Pricing of USER DEFINED MEASURES-

You **MUST** remember the following **Two Points** when pricing **User Defined Measures**:

Point A: USER DEFINED MEASURE costs that APPEAR in the COST field

Because there is not a **Quantity** field in this section of the software, **User Defined Measures** with costs that automatically **APPEAR IN THE COST(\$)** FIELD are priced **per Each** and have Material and Labor included in the one cost. You **MUST** multiply this Measure cost by the Number of Units required if more than one unit is required. This will reflect the **Total Cost** for the item. Enter the new calculated cost in the **Cost (\$)** field by double clicking on the existing price and changing the price to reflect the larger quantity if the quantity desired is greater than one.

Note: Double Check your **by Description** drop down list for Measures that are Special Circumstance (or with a per hourly, /stop in attic, /caulk, /sheet, or /2" foam board ending) prior to running your audit. These measures typically require doubling or tripling the **Costs (\$)** field in order to enter accurate costs.

Point B: USER DEFINED MEASURE costs that DO NOT APPEAR in the COST field

When choosing your User Defined Measures you will notice that some of the measures have a Materials Cost in the Comment column to the right of the measure. If you choose these measures you will see **ZERO** dollars in the **Cost (\$)** field. You will find the cost for these measures in the large **Comment** field at the **BOTTOM** of the **Itemized Costs** screen. For these Measures you must calculate the total cost for materials and labor separately, combine the two costs and enter the total in the **Cost (\$)** field below the **Measure Name** by typing over the Zero dollars (\$0.00).

D.) **DELETING A MEASURE.**

Once you have added your second measure you may delete the WH-3015 Install Faucet Aerators measure from your list if you so choose. Delete this or any other measure by first choosing the measure from the **ITEMIZED COST by Description** drop down box at the **BOTTOM** of the screen, and then click the delete (**Del**) button. The Measure will be removed from the **by Description** list.

E.) **COPYING A MEASURE.**

If you wish to have a measure included twice in your list follow this instruction. After you have chosen the measure from the **Copy from User Defined Measure** drop down box at the **TOP** of the screen for the first time, you may then choose the same measure from the **ITEMIZED COST by Description** drop down box at the **BOTTOM** of the screen and click the **Copy** button. The measure will appear a second time in your list followed by a number in parentheses.

CAUTION NOTE: You **cannot** choose a measure twice from the **Copy from User Defined Measure** drop down box at the **TOP** of the screen. If you try to do so, you will see an error message & will need to back out of your entry by striking the **esc** key.

F.) **Special Circumstance USER DEFINED MEASURE and MHEA ONLY MEASURES**

To create a **Special Circumstance User Defined Measure** you will Click the **New** button and then choose a Special Circumstance Measure from the **Copy from User Defined Measures** drop down box. Enter the combined cost for both Materials and Labor in the **Cost (\$)** field. Enter materials required for the Measure in the **Material** field. You may enter a brief Description of the Measure after the word Circumstance in the **Measure Name** field. If you wish, you may enter a more detailed description or explanation in the **Comment** field or **Comment** Pop-up Window by clicking on the **Comment** button.

Please Note that MHEA **User Defined Measures** Order #500 through #515 are out of sequence with the rest of the MHEA Measures. These are MHEA "Only" Measures and are separated in the Main Database for administrative reasons. These Measures include items from Six of the MHEA Categories including "**HS**", "**BD**", "**IF**", "**IW**", "**IC**", and "**Other**".

G.) All Measures MUST be Included in SIR (Savings Investment Ratio)

Notice that the **Include in SIR** checkbox to the right of the **Cost (\$)** field is checked each time you add a new measure. This **SIR** checkbox must be checked on every measure that you add. DO NOT change this setting. Ignore the **Material** field, the **Annual Energy Savings** field and the **Units** field.

H.) MHEA “BUILT IN” MEASURES and the Whole House SIR

Some measures that you intend to include on your IBA work order for this client will be selected from the **Copy from User Defined Measures** drop down box at the **TOP** of the **Itemized Costs** screen. However, not all measures you provided for running this audit are classified as **User Defined Measures**. The most valuable **Energy Saving Measures** you provided are NOT “User Defined”, instead they were “**built-in**” to MHEA as you enter the home’s specifications, so the software can now evaluate the cost effectiveness of performing the **Energy Saving Measures**. These **Energy Saving Measures** mostly include Insulation Measures, Furnace Replacement, Low Flow Shower Heads, Water Heater Blanket, Water Heater Pipe Insulation, Compact Fluorescent Bulb Replacement and Water Heater Replacement. Even if you expect to eventually have these **Energy Saving Measures** on your IBA Work Order, they will not be available for you to choose from in the **Copy from User Defined Measures** drop down list. However, they may be included by MHEA in your “**Run Audit**” **Recommended Measures Report**. Furthermore, ALL MEASURES, both the **Energy Saving Measures** and your **User Defined Measures** will be part of the **Whole House SIR** (Savings Investment Ratio) and the whole house **MHEA Recommended Measures Report**. This Report will evaluate the **SIR** of the Furnace Replacement and other measures as they relate to the **Whole House SIR**. If a measure you intended to add is not present in the **User Defined Measures**, it will be automatically “considered” by MHEA to included in the **Recommended Measures Report** if you have **completed your audit data entry completely**. If a measure does not appear in the **User Defined Measures** and you wish to have it considered for your client, you must add it to your **User Defined Measure** list as a Special Circumstance with Accurate Costs so it can be included in the **Whole House SIR** and evaluated in your final “**Run Audit**” in order to be part of an IBA work order that meets IBA Budget guidelines.

I.) COMPLETING YOUR AUDIT

Once you have completed choosing your **User Defined Measures** you should run this audit by clicking the **Run Audit** button in the upper right corner of the **Itemized Costs** screen. If after viewing the completed **Recommended Measures Report**, you wish to change user defined measures or any of the other Tabbed Sections, you may do so by returning to that Tab, making your changes and clicking the **Run Audit** button a second time on that Tab Page. Using this procedure will overwrite your original **Recommended Measures Report** and create your new **Recommended Measures Report** with the same **Audit Name** and (#) as your original audit. Alternatively, if you wish to have a different second or third **Recommended Measures Report** for comparison to your first **Recommended Measures Report**, you should make your changes in whichever Tabbed Section you choose and then return to the **Audit Information Tab** and Click the **Copy** button in the lower left corner. MHEA will automatically copy your **Audit Name** and assign after the Client’s Name, the next available number [e.g.,(2)] to the new audit. Click the **Run Audit** button on the **Audit Information** form to run the new **Recommended Measures Report**.

J.) THE RECOMMENDED MEASURE PDF

Once you have completed your final **Run Audit**, you will print the **Recommended Measures Report** and create a (.pdf) file using Adobe Acrobat or PDF995¹ that can be uploaded to the IBA web site as you normally would for other client reports or files.

¹PDF995 is a free pdf document creation software that can be downloaded at www.PDF995.com

K.) INTERPRETING THE NEAT AND MHEA RECOMMENDED MEASURES REPORT

The purpose of the NEAT and MHEA software for the Indiana Builders Association Home Energy Conservation Program is to determine the cost effectiveness of the Energy Saving Measures we implement and to justify their implementation through detailed analysis of a measure's cost over the life of the measure. The savings Investment Ratio (SIR) is equal to the Savings Realized over the Lifetime of the Measure divided by the Costs of the Measure's implementation. If the SIR is equal to or greater than 1.0, the Measure is considered to be cost effective and can be implemented or installed in the client's home. Please use the following Rules for interpreting the Energy Saving Measure Economics Section of the NEAT or MHEA Recommended Measures Report (RMR). These rules will help you determine if a specific measure is NEAT or MHEA cost effective ($SIR \geq 1.0$) and therefore an acceptable measure for implementation or installation. Complete your Audit, print the report (RMR), and then apply these rules.

In brief, the following are the DOE Rules that we must follow:

Rule #1- All Energy Saving Measures that are analyzed must individually have an SIR equal to or greater than 1.0 ($SIR \geq 1.0$) or they cannot be implemented or installed.

Rule #2- Non Energy Saving Measures are considered to be Repairs, and can only be implemented or installed if they are part of a Cumulative (Whole House) $SIR \geq 1.0$. Notice that the cumulative SIR can change from (0.0) for list of Non Energy Measures to a positive number once an Energy Saving Measure is introduced. Also note that the cumulative SIR changes cumulatively with each additional measure in the Energy Saving Measure Economics list.

Rule #3- If a repair is going to be paid for with Health and Safety Funds, it does not have to be included in the Cumulative (Whole House) SIR. When Health and Safety Funds are exhausted you should follow Rules #1, 2, and 5.

Rule #4- If you are planning to pay for a Measure with Health and Safety Funds you can "Uncheck" the **Include in SIR** checkbox for that Measure in NEAT/MHEA and the Measure will move to the end of the Recommended Measure Listing in the Energy Saving Measure Economics section of the NEAT/MHEA Recommended Measures Report. The measure will still be included in the Cumulative Cost but it's 0.00 SIR will no longer be included in the Cumulative SIR.

Rule #5- Some Measures can be thought of as both an Energy Saving Measure and a Repair Measure. An example is a broken window. If the replacement windows SIR is less than 1.0 it is not considered an energy saving measure, it's considered a repair measure. A Furnace is like this too, if it works but it has a cracked heat exchanger. If the Furnace Replacement has an SIR of 0.9, it is considered a repair and not an Energy Saving Measure. It may be possible to bring the SIR up to 1.0 by installing a less expensive furnace, but it is possible that despite your best efforts to change measures and run additional Audit(s), the furnace may still miss the SIR of 1.0. So if the furnace is now considered a repair measure (Non Energy Saving), and is a part of a Cumulative Whole House SIR that is 1.0 or greater and still within budget, can the furnace be replaced under Rule #2 above? In this instance, only the IHCDA or the DOE can approve replacing the furnace. If necessary, contact the IBA production team for their involvement and a final decision on how to proceed.