

- 1. General Policy**
 - 1.1. Window Policy
 - 1.2. Refrigerator Policy
 - 1.3. Lighting Policy
- 2. Screen by Screen Instructions**
 - 2.1. NEAT
 - 2.2. MHEA
 - 2.3. EA-QUIP
- 3. Compliance Review**

1. General Policy

The United States Department of Energy (USDOE) Weatherization Assistance Program has sponsored the development of a database computer software tool to help weatherization authorities make decisions about the cost effectiveness of individual energy conservation measures. Separate audit methods were developed for site-built residential structures and for manufactured housing (i.e. mobile homes). The Weatherization Assistant is a single entry point for operating either type of audit and organizing other types of weatherization data.

Required Audits:

- Single Family: National Energy Audit Tool (NEAT)
- Mobile Homes: Manufactured Home Energy Audit (MHEA)
- Multi Families: Energy Audit using the Queens Information Package (EA-QUIP)

Mandatory Audit Features:

The following are mandatory audit features that must be adhered to by WAP Agencies. Failure to do so may result in findings and non compliance of grant agreement.

- Site specific audits must be completed on all units weatherized with US DOE Annual & USDHHS (LIHEAP) funds. The site specific energy audits re:
- Weatherization agencies must review and create libraries for all audits immediately when prices for materials and/or labor have changed.
- Please note that agencies are required to select the “Evaluate All” option in the energy audits to ensure when windows measures are selected the effectiveness of the window measure is confirmed.
- To correctly perform a NEAT or MHEA audit, labor costs must be included in the library.
- Weatherization agencies are required to consider air sealing (infiltration reduction) as part of the NEAT energy audit analysis.
- For multi-family buildings, all EA-QUIP audits must be reviewed by State Monitor followed by a physical site assessment to confirm the work indicated on the audit is required for the multi-family project. If the project will be funded through LIHEAP WX, WAP Agency can proceed to a bid upon receiving written approval from State Monitor. If the project will be funded through DOE Annual funds, the project must be submitted to OLIEC for forwarding to USDOE for review and approval prior to any work commencing. WAP Agency must provide the following documents for submission to USDOE:

- Short narrative describing existing building (size, no. of units, envelope, building age, mechanical systems) and proposed improvements.
 - Audit – EA-QUIP
 - Online EA-QUIP- WAP Agency must provide direct access to it with a password and userID.
 - If utilizing the old disc-based EA-QUIP then WAP Agency must print out a hard copy and scan -printout **MUST INCLUDE** the comparison of modeled vs. actual energy use.
 - Field assessment notes and back-up calculations (if any).
 - Any other documentation that was used to define the Scope of Work for the Project.
 - Scope of Work for the Project including SIR for each measure and cumulative SIR.
- To improve quality of audits, agencies are required to include the existing cooling information for the NEAT/MHEA audits.

1.1. Window Policy

This guidance will apply when replacing windows applicable to single, mobile, and multi-family units. **Please note that door and window replacement, repair, and/or installation are not eligible as WAP health and safety expenses (WPN 11-6).**

1. Replacement of 5 windows or more must be approved by the assigned State Monitor.
2. There must be a SIR of 1 or greater on the NEAT and/or any other approved audit to justify replacement.
3. Existing storm windows must be removed before installing new windows. Clients must be informed of this policy before Weatherization work is completed. If a client refuses to allow storm windows to be removed, then new windows cannot be installed. If the client consents, he/she must sign an acknowledgment that will be placed in the client file.
4. Pictures of the existing windows must be placed in the client file.
5. Exterior framing must be finished. This means that either the wood is painted or capped and caulked.
6. Rotted wood must be replaced before painting or capping is completed. It is not acceptable to put capping over rotted wood.
7. Windows must operate properly after installation. This means that the window opens and closes smoothly and that locks operate as intended.
8. Pictures of installed replacement (new) windows must be placed in the client file.

1.2. Refrigerator Policy

The following policies and procedures will apply to the Replacement of Refrigerators. This list is not all-inclusive and may be amended to address other issues that become apparent after the start of the program.

Refrigerator Replacement Policy

Client Education The client must be given adequate information and sign an Acceptance Form to avoid problems with the delivery of the new refrigerator. If the client receives the information and declines to accept a replacement refrigerator, they are still entitled to have other work done that is recommended by the energy audit. It is most important that clients know that the replacement is based on the efficiency of the existing unit so the community does not think everyone who applies will get a new unit.

Acceptance Form

Payment for Refrigerators and Other Related Costs

The cost of the refrigerator includes delivery. However, if the client does not accept delivery of the unit, there will be a charge for the attempted delivery. To avoid these additional charges, each delivery request should have a backup or alternative delivery site. The alternate site must know that they may not receive the unit "early" so if it is successfully delivered to the primary location the alternate is not disappointed.

Unless there is a serious documented emergency, a client who fails to be available for delivery will forfeit the unit.

The cost of the refrigerator includes the pickup of the existing unit and refrigerant recovery. If the household has two refrigerators and agrees to discard both to receive one larger new unit, the agency will pay additional fee to have the second refrigerator removed.

Replacement Justification

1. Before a refrigerator can be replaced it must be evaluated. Sub grantee will use the Line Logger database to measure the rate of consumption and maintain the results in the client file.
 - a. Testing is required on **all** refrigerators replaced in dwellings containing 1-4 units.
 - b. 10% of the total refrigerators proposed to be replaced in a multi-family dwelling, 5 units or more, must be evaluated.
 - c. If no model number is available, then the unit must be metered.
2. Only one (1) new refrigerator per household. If the family has more than one refrigerator, two can be replaced with one large size refrigerator. If the household opts to have only one unit replaced, it will be replaced with a comparable size unit. Free standing freezer units are not included.

3. If two refrigerators exist and only one can be replaced, then the unit with the higher SIR must be replaced.
4. Installation of Side by Side refrigerators is not permissible.
5. Bottom Freezer refrigerators are allowable if client is ADA compliant.
6. A new refrigerator cannot be installed where none currently exists. If the refrigerator is inoperable, approval from the OLIEC will be required for replacement. Request must include a picture of the existing unit with efficiency information, if available.
7. The size of the refrigerator will be determined by the number of household members and amount of space available for the unit.
8. Three colors are available (white, black, and egg shell/almond).
9. The sub grantee will ensure that the client receives information regarding the make, model, and color of the refrigerator. The sub grantee will also have the client sign an acceptance form BEFORE the unit is delivered.
10. The client is to receive all instructional and warranty information for the refrigerator.
11. If a client refuses to accept a refrigerator, does not allow the old unit to be removed, or fails to keep two (2) delivery appointments, no refrigerator will be delivered to the client.
12. If a new refrigerator is defective upon delivery, the sub grantee will notify respective vendor and request a replacement.
13. WAP Agency is required to pay for all refrigerators delivered within 30 business days. Payment cannot be withheld because other Weatherization measures have not passed inspection.

RENTAL AND MULTI-UNITS

1. If tenants pay for electricity and own the existing refrigerator, sub grantees are to use the procedures for single-family owner-occupied units.
2. If tenants do not pay for electricity directly and do not own the existing refrigerator, the replacement should not be considered a priority. If the landlord wants replacements AND the energy audit recommendation supports the measure, leveraging applies. Landlords must pay 50% of the cost for replacements. Any measures ranked higher must be installed before refrigerator replacements.
3. If tenants do not pay for electricity but own the refrigerators, replacement units may be considered AFTER the installation of measures that will reduce heating cost.
4. Refrigerator replacement is part of the average cost, must be recommended by the energy audit, and cannot be installed as a health and safety measure.
5. Replacement is also allowed in vacant units.
6. When a unit becomes vacant and the landlord received the refrigerator through the weatherization program, the refrigerator is to remain in the unit.

7. Copy of invoice for the refrigerator must be included in the client file.

1.3. Lighting Policy

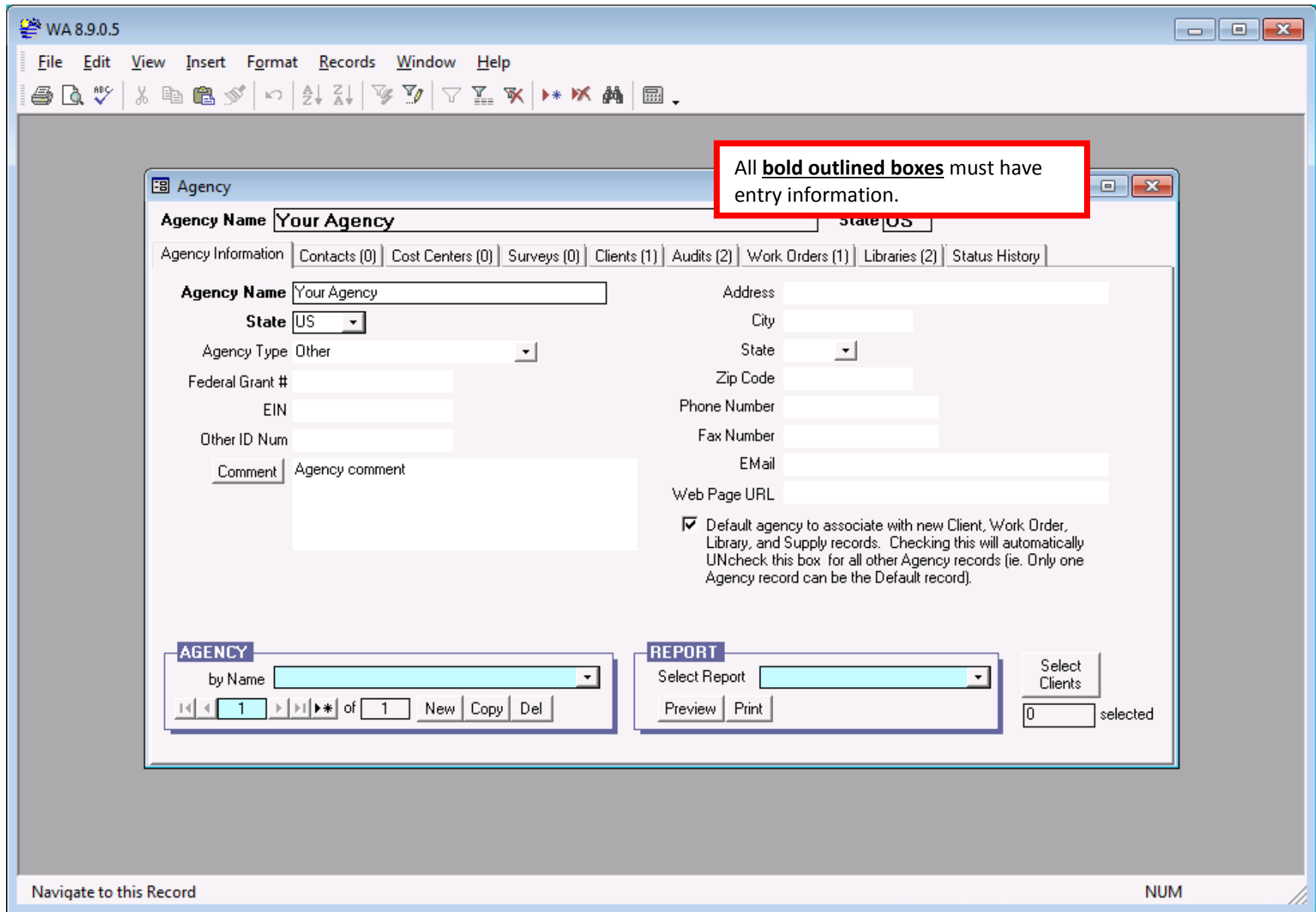
Fluorescent lighting is an allowable weatherization measure. Exterior lighting is permissible on Single Family, Mobile homes and Multi-Family units as long as the lighting fixture itself is physically attached to the building. Lighting upgrades must be recommended by the Energy Audit to consider its' cost effectiveness with other weatherization measures that will be installed in the dwelling unit.

2. Screen by Screen Instructions:**2.1.NEAT**

NEAT was designed for use by local agencies in the Weatherization Assistance Program. It is an approved audit that meets all auditing requirements set forth by the USDOE Weatherization Assistance Program as well as those anticipated from new regulations pertaining to waiver of the 40 percent materials requirement.

NEAT applies engineering and economic calculations to evaluate energy conservation measures for single-family, detached houses or small multifamily buildings. You can use it to rank measures for each individual house, or to establish a priority list of conservation measures for nearly identical housing types.

NEAT was written for the Weatherization Assistance Program by Oak Ridge National Laboratory. Many building energy consumption algorithms are taken from Lawrence Berkeley Laboratory's Computerized Instrumented Residential Audit (CIRA), published in 1982 for the U.S. Department of Energy. Equipment retrofit conservation measures are based on published reports on various heating retrofits. Heating and cooling system replacement conservation measures are based on the energy ratings of new heating and cooling equipment.



The screenshot displays the WA 8.9.0.5 software interface. At the top, there is a menu bar (File, Edit, View, Insert, Format, Records, Window, Help) and a toolbar with various icons. A red-bordered box highlights the text: "All bold outlined boxes must have entry information." Below this, the "Agency" window is open, showing a form for "Agency Name" (filled with "Your Agency") and "State" (filled with "US"). A tabbed interface below the form includes "Agency Information", "Contacts (0)", "Cost Centers (0)", "Surveys (0)", "Clients (1)", "Audits (2)", "Work Orders (1)", "Libraries (2)", and "Status History". The "Agency Information" tab is active, showing fields for "Contact Name", "User Name", "Active" (checked), "References", "Name Detail - First", "MI", "Last", "Company", "Address", "Work Phone", "Cell Phone", "Auditor" (checkbox), "EIN", "Unit Number", "Pager", "Contractor" (checkbox), "Title", "City", "Fax", "Crew" (checkbox), "State" (dropdown), "Home Phone", "Supplier" (checkbox), "Zip Code", "Email", and "Web Page". A "Comment" field is also present. At the bottom of the form, there is a "Change LogOn Group and Password" button and an "Unassigned" button. A table titled "AGENCY CONTACT" is shown at the bottom left, with columns for "by Contact Name", "by User Name", and "by Company". The table contains one row with the number "1" in the first column. Below the table are navigation buttons: "New", "Copy", and "Del". The status bar at the bottom of the window shows "The Agency Contact's Full Name" on the left and "NUM" on the right.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Agency Name State

Agency Information | Contacts (0) | **Cost Centers (0)** | Surveys (0) | Clients (1) | Audits (2) | Work Orders (1) | Libraries (2) | Status History

Cost Center Name **Not required** References

Cost Center Type

Program Year

Description

Comment

	Actual	Expected
Total Funds In	<input type="text"/>	<input type="text"/>
Total Non-Work Order Costs	<input type="text"/>	<input type="text"/>
Total Available Funds	<input type="text"/>	<input type="text"/>
Total Work Order Costs	<input type="text"/>	<input type="text"/>
Balance	<input type="text"/>	<input type="text"/>

Show Fund Transactions

Show Work Order Costs

COST CENTER

by Cost Center Name

1 of 1 New Copy Del

Name of the Cost Center NUM

The screenshot shows the WA 8.9.0.5 software interface. The main window is titled 'Agency' and contains the following elements:

- Agency Name:** Your Agency
- State:** US
- Navigation Tabs:** Agency Information, Contacts (0), Cost Centers (0), Surveys (0), Clients (1), Audits (2), Work Orders (1), Libraries (2), Status History
- Survey Name:** [Empty field]
- Active:**
- Survey Question Definitions Table:**

Group	Order #	Question
- Record:** 1 of 1
- SURVEY DEFINITION Section:**
 - by Survey Name: [Dropdown menu]
 - Navigation: 1 of 1
 - Buttons: New, Copy, Del
 - Comment: [Text area]

A red box highlights the 'Surveys (0)' tab and the 'Not required' text. A large red prohibition sign is overlaid on the Survey Question Definitions table.

What is the name of the survey that this question participates in (grouping) NUM

The screenshot shows the WA 8.9.0.5 software interface. The main window is titled 'Agency' and contains a form with the following fields: 'Agency Name' (Your Agency) and 'State' (US). Below the form is a navigation bar with tabs: 'Agency Information', 'Contacts (0)', 'Cost Centers (0)', 'Surveys (0)', 'Clients (1)', 'Audits (2)', 'Work Orders (1)', 'Libraries (2)', and 'Status History'. The 'Work Orders (1)' tab is selected and circled in red. Below the navigation bar is a table with the following columns: '<Client ID>', '<Work Order>', 'Contractor', 'Status', 'Date', and 'Inspect S'. The table contains one row: 'Client (1)', 'Work Order (1)', and a cell containing the text 'Not required' which is also circled in red. A large red prohibition sign is overlaid on the table area. At the bottom of the table, there is a record navigation bar showing 'Record: 1 of 1' and a 'Refresh List' button. The bottom left of the window is labeled 'Form View' and the bottom right is labeled 'NUM'.

The screenshot shows the WA 8.9.0.5 software interface. At the top is a menu bar with File, Edit, View, Insert, Format, Records, Window, and Help. Below the menu bar is a toolbar with various icons. A red box highlights the text: "All **bold outlined boxes** must have entry information." The main window is titled "Client" and contains several sections:

- Client Information:** Client ID (Client (1)), Client Name, Alt. Client ID, Agency (Your Agency), State (US), Address, Unit Number, City, State, Zip Code, County, Other Geographic Identifier, Comment.
- Occupants (number of):** Occupants, Native American (0), Elderly (0), Children (0), Disabled (0), Primary Language (English).
- Dwelling:** Type, Ownership, Primary Heating Fuel, High Energy Use (checkbox), Secondary Heating Fuel, High Energy Burden (checkbox), Previously Weatherized (checkbox), Low Cost/No Cost (checkbox), Year Built (with a red arrow pointing to it from a red box containing the text "Year built (actual or estimated) must be entered."), Account #1, #2.
- Cumulative Cost:** \$0.00, SIR: 0.0.
- CLIENT:** by Client ID, by Contact Name, by Alt. Client ID, navigation buttons (1 of 1), New, Copy, Del.
- REPORT:** Select Report (Client Completion Report), Preview, Print, Snapshot File.

At the bottom left, it says "Navigate to this Record" and at the bottom right, "NUM".

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Client

Client ID Client Name Alt. Client ID

Client Information | Status | Energy Index | Contacts (0) | Audits (2) | WorkOrders (1) | Surveys (0) | Photos (0)

Normalized Heating Energy Consumption Index Calculator

<Fuel Costs> **Default Costs** (fuel cost selections here are copied to new audits for this client)

Floor Area (sq ft) (floor area values entered here are copied to new NEAT audits for this client)

Heating Degree Days (base 65F) (this value is independent of the data in the audit weather file for this client)

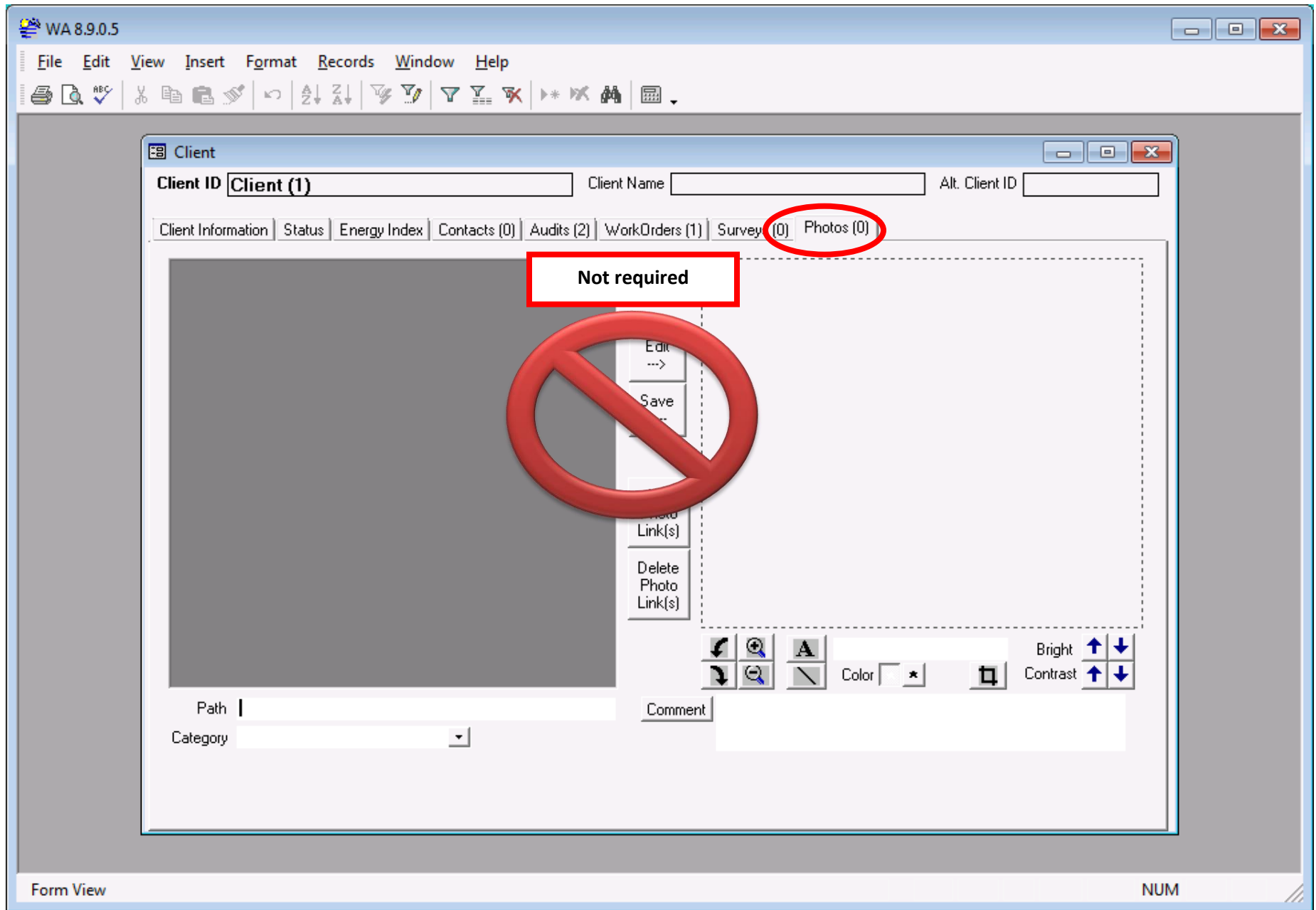
	Fuel Type	Annual Cost (\$)	Est. % Heating	BTU/HDD/sq ft
Primary Heating Fuel:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Secondary Heating Fuel:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total Heating BTU/HDD/sqft				<input type="text"/>

High Energy Use (Read only on this form. Use the Client Information tab to edit.)

Fuel Cost group record for this client NUM

The screenshot shows the WA 8.9.0.5 software interface. The main window is titled 'Client' and contains several tabs: Client Information, Status, Energy Index, Contacts (0), Audits (2), WorkOrders (1), Surveys (0), and Photos (0). The 'WorkOrders' tab is selected and circled in red. Below the tabs is a table with columns: <Work Order Name>, Status, Status Date, Inspect Status, and Date. A single record is visible: 'Work Order (1)'. A red box with the text 'Not required' is overlaid on the 'Status' column of this record. A large red prohibition sign (a circle with a diagonal slash) is centered over the table area. At the bottom of the window, there are fields for 'Savings' (\$0.00), 'Cumulative CLIENT Actual Cost' (\$0.00), and 'SIR' (0.00). A footer note reads: 'The human visible/assignable name or number of this work order' followed by 'NUM'.

The screenshot shows the WA 8.9.0.5 software interface. At the top is a menu bar with File, Edit, View, Insert, Format, Records, Window, and Help. Below the menu bar is a toolbar with various icons. The main window is titled 'Client' and contains several fields: Client ID (Client (1)), Client Name, and Alt. Client ID. Below these are tabs for Client Information, Status, Energy Index, Contacts (0), Audits (2), WorkOrders (1), Surveys (0), and Photos (0). The 'Surveys (0)' tab is circled in red. Underneath, there is a Survey Name field and a Survey Questions table. The table has columns for Group, #, Question, Reply, and <Comment>. The 'Question' column header is highlighted with a red box containing the text 'Not required'. A large red prohibition sign is overlaid on the table. Below the table is a Record: 1 of 1 indicator. At the bottom left, there is a 'SURVEY' section with a dropdown menu for 'by Survey Name' and a 'Del' button. To the right is a 'Comment' text area. At the bottom right, there is a 'which Survey to Create' dropdown menu and a 'Create New Survey' button. The bottom status bar contains the text 'What is the string value of the answer' and 'NUM'.



The screenshot shows the NEAT Audit software interface. At the top, a red box contains the text: "All **bold outlined boxes** must have entry information." Below this, the main form is titled "NEAT Audit" and includes fields for "Audit Name" (Audit (1)), "Client ID" (Client (1)), and "Client Name". A tabbed interface shows "Audit Information" as the active tab. A red box on the right side of the form contains the instruction: "Enter the number of square feet of floor area that is conditioned. If more area is heated than effectively cooled, enter the heated floor area. The value is total floor area, not footprint area, (e.g. enter 2400 for a two story house with 1200 square feet in each story)." This points to the "Floor Area (sq ft)" field. Another red box on the right contains the instruction: "Add comment here, if the household does not possess air conditioning or it has been removed for the winter season." This points to the "Comment" text area. A red box on the left side of the form contains the instruction: "In this section the setup library should be picked and the supply library associated with the agency. Also the weather file should be picked. Example: NEWARKNJ.WX" This points to the "Libraries and Other Options" section, which includes dropdown menus for "Setup Library", "Fuel Cost Library", "Library", and "Weather File". At the bottom of the form, there are search filters and a "REPORT" section with a "Select Report" dropdown set to "Recommended Measures" and buttons for "Preview", "Print", and "Snapshot File".

2.1

The screenshot shows the NEAT Audit software interface. At the top, there is a menu bar with options: File, Edit, View, Insert, Format, Records, Window, Help. Below the menu bar is a toolbar with various icons. The main window is titled "NEAT Audit" and contains several sections:

- Audit Information:** Fields for Audit Name (Audit (1)), Client ID (Client (1)), Client Name, and Alt. Client ID.
- Navigation Tabs:** Audit Information, Status, Shell, Heating (0), Cooling (0), Ducts/Infiltration, Baseloads, Health & Safety, Itemized Costs (0), Utility Bills (0), Photos (0), Measures (0).
- Category Selection:** Walls (0), Windows (0), Doors (0), Unfinished Attics (0), Finished Attics (0), Foundations (0).
- Wall Data Entry Form:**
 - Wall Code:
 - Wall Type:
 - Existing Insulation: Type , R Value
 - Added Insulation: Type , Additional Cost (\$)
 - Exterior Type:
 - Exposed To:
 - Orientation:
 - Gross Area (sq ft):
 - Measure #:
 - Buttons: Windows on this Wall, Doors on this Wall
- Buttons:** Run Audit, Last Run On, Not Run at,
- Footer:** The short code for this wall (must be unique for this Job) [Default WL1 (TAB on blank field to accept)] NUM

Annotations:

- A red box highlights the text: "All **bold outlined boxes** must have entry information."
- A red box highlights the text: "Housing structures should have at least 4 walls. If the building has structure additions with a foundation/roof area it should be entered appropriately." with an arrow pointing to the "New" button in the bottom left.
- A blue box highlights the bottom left area containing the "WALL" label, a dropdown menu for "by Wall Code", and navigation buttons (New, Copy, Del).

The screenshot shows the NEAT Audit software interface. At the top, there is a menu bar with options: File, Edit, View, Insert, Format, Records, Window, Help. Below the menu bar is a toolbar with various icons. The main window title is "NEAT Audit".

Key annotations and callouts include:

- A red box at the top right contains the text: "All boxes must have entry information."
- A red box in the center points to the "Retrofit Options" field with the text: "Retrofit Option: select 'Evaluate All'".
- A yellow box points to the "Leakiness" dropdown menu with the text: "For window leakiness guidance, go to waptac.org under Weatherization Assistant Support Material."
- A red box at the bottom right contains the text: "Enter the approximate percentage of window area frequently shaded by eaves (typically 20%), porches (typically 100%), or other physical exterior barriers. Do not include the percent (%) sign."

The interface includes several input fields and dropdown menus for "Window Code", "Window Type", "FrameType", "Glazing Type", "Interior Shading", "Exterior Shading (%)", "Leakiness", "Average Size" (Width and Height in inches), and "Number on this Wall" (Wall Code and Number). There are also buttons for "Run Audit", "Last Run On", "Not Run", and "at". A status bar at the bottom indicates "The short code identifying the window (must be unique for windows on this wall) [Default WD1 (TAB on blank field to acc NUM".

The screenshot shows the NEAT Audit software interface. At the top, there is a menu bar (File, Edit, View, Insert, Format, Records, Window, Help) and a toolbar. The main window title is "NEAT Audit". Below the title bar, there are several tabs: "Audit Information", "Status", "Shell", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)". Under the "Shell" tab, there are sub-tabs for "Walls (0)", "Windows (0)", "Doors (0)", "Unfinished Attics (0)", "Finished Attics (0)", and "Foundations (0)".

The "Doors (0)" sub-tab is active, showing a form for entering door information. The form includes fields for "Door Code", "Door Type", "Area (sq ft)", "Storm Door Condition", and "Leakiness". There are also "Optional Dimensions" for "Width (in)" and "Height (in)", and a "Number on this Wall" section with "Wall Code" and "Number" fields. A checkbox labeled "Replacement Door Required" is present, with a red circle and a diagonal slash over it, and a red arrow pointing to it from a text box. The "Additional Cost (\$/door)" field is also visible. On the right side, there is a "Run Audit" button and a "Last Run On" field with a "Not Run at" button below it.

At the bottom of the window, there is a "DOOR" section with a "by Door Code" dropdown, a list of doors (currently showing "1" of "1"), and buttons for "New", "Copy", and "Del". A "Comment" field is also present.

Two red-bordered text boxes provide instructions: one at the top right says "All bold outlined boxes must have entry information.", and another on the right says "Checking the 'Replacement required' box is not allowable. The audit must recommend the door replacement based on conditions entered." The bottom status bar contains the text "Short door code (must be unique for doors on this wall) [Default DR1 (TAB on blank field to accept)]" and "NUM".

The screenshot shows the NEAT Audit software interface. At the top, there is a menu bar (File, Edit, View, Insert, Format, Records, Window, Help) and a toolbar. The main window is titled "NEAT Audit" and contains several tabs: "Audit Information", "Status", "Shell", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)". Below these are sub-tabs for "Walls (0)", "Windows (0)", "Doors (0)", "Unfinished Attics (0)", "Finished Attics (0)", and "Foundations (0)".

The "Unfinished Attics (0)" tab is active, showing a form with the following fields:

- Attic Code**: A text input field.
- Attic Type**: A dropdown menu.
- Joist Spacing (in)**: A text input field.
- Area (sq ft)**: A text input field.
- Roof Color**: A dropdown menu.
- Existing Insulation**: A section containing "Type" (dropdown) and "Depth (in)" (text input).
- Added Insulation**: A section containing "Measure #" (dropdown), "Type" (dropdown), "Added R Value or Max. Depth (in)" (text input), and "Additional Cost (\$)" (text input).

On the right side of the form, there are buttons for "Run Audit", "Last Run On", "Not Run", and "at".

At the bottom of the form, there is a "Comment" text area and a "UNFINISHED ATTIC" section with a dropdown menu for "by Attic Code" and a list of items (currently showing "1" of "1") with "New", "Copy", and "Del" buttons.

Three red callout boxes provide instructions:

- Top right:** "All **bold outlined boxes** must have entry information." (Points to the "Added Insulation" section).
- Bottom left:** "Open tab to enter additional Unfinished Attics. The sum of the attic area (Sq. ft.) should be about equal to the floor area (Sq. ft.) Add comment if the structure has an unusual floor plan." (Points to the "UNFINISHED ATTIC" section).
- Bottom right:** "If either the 'Added R Value' or 'Max. Depth (in)' fields are used; they must be explained in the comment section." (Points to the "Added R Value or Max. Depth (in)" field).

At the bottom of the window, there is a status bar with the text: "Short code describing attic (must be unique for this Job) [Default A1 (TAB on blank field to accept)]" and "NUM".

The screenshot shows the NEAT Audit software interface. At the top, there is a menu bar (File, Edit, View, Insert, Format, Records, Window, Help) and a toolbar. The main window is titled "NEAT Audit" and contains several tabs: "Audit Information", "Status", "Shell", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)". Below these are sub-tabs for "Walls (0)", "Windows (0)", "Doors (0)", "Unfinished Attics (0)", "Finished Attics (0)", and "Foundations (0)".

Annotations include:

- A red box at the top right containing the text: "All **bold outlined boxes** must have entry information."
- A red box on the left containing the text: "Open tab to enter additional Finished Attics. Examples: slopes, knee-wall, knee-wall floor, and collar beam." with an arrow pointing to the "Finished Attic" tab.
- A blue box at the bottom left containing the text: "FINISHED ATTIC" and "by Attic Code" with a dropdown menu showing "1" and buttons for "New", "Copy", and "Del".

At the bottom of the window, there is a status bar with the text: "Short code describing attic (must be unique for this Job) [Default FA1 (TAB on blank field to accept)]" and "NUM".

The screenshot shows the NEAT Audit software interface. At the top, there is a menu bar (File, Edit, View, Insert, Format, Records, Window, Help) and a toolbar. The main window title is "NEAT Audit". Below the title bar, there are several tabs: "Audit Information", "Status", "Shell", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)". Under the "Audit Information" tab, there are fields for "Audit Name" (Audit (1)), "Client ID" (Client (1)), "Client Name", and "Alt. Client ID". Below these are more tabs: "Walls (0)", "Windows (0)", "Doors (0)", "Unfinished Attics (0)", "Finished Attics (0)", and "Foundations (0)". The "Foundations (0)" tab is active, showing fields for "Foundation Code", "Foundation Type", and "Measure #". There are three main sections for data entry: "Floor", "Sill", and "Foundation Wall". Each section has fields for "Area (sq ft)", "Perimeter (ft)", "Height (ft)", "Existing Insulation R Value", "Added Insulation Type", and "Additional Cost (\$)". A "FOUNDATION" tab is open at the bottom, showing a list of foundation entries with columns for "by Foundation Code", "of", "New", "Copy", and "Del". The current entry is "1".

All **bold outlined boxes** must have entry information.

The foundation perimeter should be consistent with the floor area.

Open tab to enter additional foundations. Examples: crawlspaces and slab on grade.

Short name for the foundation space (must be unique for this Job) [Default F1 (TAB on blank field to accept)] NUM

The screenshot shows the NEAT Audit software interface. At the top, a red box contains the text: "All **bold outlined boxes** must have entry information." Below this, the main form has several fields: "Audit Name" (Audit (1)), "Client ID" (Client (1)), "Client Name", and "Alt. Client ID". A tabbed interface is visible with tabs for "Audit Information", "Status", "Shell", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)".

Key fields and callouts include:

- Primary System**: A dropdown menu highlighted with a red box.
- Uninsulated Supply Ducts (1)**: A field highlighted with a red box, with an arrow pointing to a pop-up window.
- Heating System Details**: A section with a red box containing instructions:
 - Ensure "Output BTU" is entered in correct units.
 - Ensure "Steady State Efficiency" matches combustion test reading.
 - If the "Mandatory Replacement" option has been chosen, there must be documented justification and an S.I.R of 1.0 on the Recommended Measure Report.
- Uninsulated Supply Ducts for Heating System: F1**: A pop-up window with a "Location" dropdown (set to "Attic") and a table for "Uninsulated Supply Duct Sections":

Type	Length (ft)	Width (in)	Height (in)	Diameter (in)
1) Rectangular				
2)				
3)				
- HEATING SYSTEM**: A section with a "by System Code" dropdown and a "New" button highlighted with a red box.
- Open tab to enter secondary heating source.**: A red box pointing to the "Heating (0)" tab.

At the bottom, there are buttons for "Operational Tests", "Vent Tests", "Furnace Components", "Boiler Components", "Inspections", and "Thermostat". A "Comment" field is also present. The status bar at the bottom shows "Form View" and "NUM".

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

AC Code
Equipment Type
Manufacturer
Model
Floor Area Cooled (sq ft)
Capacity (kBtu/hr)
SEER
Year Manufactured

Required Retrofits
Replacement Required **OLIEC approval required**
Tune-up Mandatory

Conversion of Room Air Conditioner EER to SEER
SEER = 0.9 * EER + 0.1 Fan runs continuously
SEER = 1.2 * EER - 0.7 Fan runs only when cooling
The year the cooling system was manufactured will calculate the SEER automatic.

COOLING SYSTEM
by AC Code
1 of 1 New Copy Del

Comment

Short name of cooling system [Default AC1 (TAB on blank field to accept)] NUM

The screenshot shows the NEAT Audit software interface. The main window is titled "NEAT Audit" and contains several tabs: "Audit Information", "Status", "Shell", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)". The "Ducts/Infiltration" tab is active.

Under the "Ducts/Infiltration" tab, there are sub-sections for "Air and Duct Leakages", "Optional Blower Door and Zonal Pressures (0)", and "Optional Pressure". The "Evaluate Duct Sealing" checkbox is unchecked.

The "Whole House Blower Door Measurements" section contains two columns: "Before Weatherization (Existing)" and "After Weatherization (Target or Actual)".

Measurement	Before Weatherization (Existing)	After Weatherization (Target or Actual)
Air Leakage Rate (cfm) at House Pressure Difference (Pa)	5372	3200
	50	50

The "Costs" section includes a field for "Infiltration Reduction (\$)" with the value "\$100.00" and a "Comment" field.

Two red callout boxes provide instructions:

- Top Callout:** Both "Before Weatherization" and "After Weatherization" blower door measurement must be entered.
- Bottom Callout:**
 - Infiltration reduction measures associated with the cost must be listed in the comment section.
 - Infiltration reduction must achieve an S.I.R of 1.0 on the Recommended Measure Report.
 - The following measures are acceptable in this category.
 - Duct Sealing
 - Door installation (where none exists) separating conditioned from non-conditioned areas.

At the bottom of the window, there is a status bar with the text "Pre infiltration reduction Whole House blower door test (CFM) [Min 500 ,Max 8000]" and a "NUM" label.

The screenshot shows the NEAT Audit software interface. At the top, there is a menu bar with 'File', 'Edit', 'View', 'Insert', 'Format', 'Records', 'Window', and 'Help'. Below the menu is a toolbar with various icons. The main window is titled 'NEAT Audit' and contains several sections:

- Audit Information:** Fields for 'Audit Name' (Audit (1)), 'Client ID' (Client (1)), 'Client Name', and 'Alt. Client ID'.
- Navigation Tabs:** 'Audit Information', 'Status', 'Shell', 'Heating (0)', 'Cooling (0)', 'Ducts/Infiltration', 'Baseloads', 'Health & Safety', 'Itemized Costs (0)', 'Utility Bills (0)', 'Photos (0)', and 'Measures (0)'. The 'Ducts/Infiltration' tab is active.
- Air and Duct Leakages:** A sub-section with three tabs: 'Optional Blower Door and Zonal Pressures (0)', 'Optional Pressure Balance (0)', and 'Optional Pressure Pans (0)'. The first tab is selected and highlighted with a red box.
- Form Fields:**
 - 'Date' field with value '6/19/2014'.
 - 'Conducted During' dropdown menu.
 - 'Equipment Used' text input field.
 - 'Blower Door Measurements' section with fields for 'Air Leakage Rate (CFM)', 'Building Pressure Differential (Pa)', and 'Corrected CFM at 50 Pa'. A 'Calculate' button is next to the last field.
 - 'ZONAL Pressure Readings for:' with buttons for 'This Blower Door Test (0)' and 'Whole Audit (0)'.
 - 'Pressure PAN Readings for:' with buttons for 'This Blower Door Test (0)' and 'Whole Audit (0)'.
 - 'BLOWER DOOR TEST' section with a 'by Date' dropdown, navigation buttons (back, forward, search), and 'New', 'Copy', 'Del' buttons.
 - 'Comment' text input field.
- Buttons:** 'Run Audit', 'Last Run On', and 'Not Run at' buttons are on the right side.

A red arrow points from a red-bordered text box containing the text 'Entry is optional for additional diagnostic testing.' to the 'Optional Blower Door and Zonal Pressures (0)' tab.

At the bottom of the window, there is a table header with the text 'When were the blower door/zonal pressure readings taken' and a column labeled 'NUM'.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Entry is optional for additional diagnostic testing.

NEAT Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Air and Duct Leakages Optional Blower Door and Zonal Pressures (0) Optional Pressure Balance (0) Optional Pressure Pans (0)

Location+	Initial (Pa)	Final (Pa)	<Comment>
-----------	--------------	------------	-----------

Record: 1 of 1

A description of the zone where the pressure reading was taken NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Entry is optional for additional diagnostic testing.

NEAT Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information | Status | Shell | Heating (0) | Cooling (0) | Ducts/Infiltration | Baseloads | Health & Safety | Itemized Costs (0) | Utility Bills (0) | Photos (0) | Measures (0)

Air and Duct Leakages | Optional Blower Door and Zonal Pressures (0) | Optional Pressure Balance (0) | Optional Pressure Pans (0)

Blower Door Test^	Register #	Location+	Register Type^	Initial (Pa)	Final (Pa)	<Comment>

Record: 1 of 1

NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

All **bold outlined boxes** must have entry information.

NEAT Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Water Heating (0) Refrigerators (0) Lighting Systems (0)

Existing Equipment

Manufacturer Model

Fuel Rated Input

Location Input Units

Size (gal) Energy Factor

Water Heater Wrap Present Recovery Efficiency (%)

Water Heater Pipe Insulation Present

Original Tank Insulation

R Value Thickness (in) Type

Shower Heads

Number of ShowerHeads Avg. GPM

Shower Use (min/day)

Comment

New Del Optional Water Heater Details Operational Tests Vent Tests Inspections

Replacement

Pick from Library

Manufacturer

Model

Fuel

Rated Input

Input Units

Size (gal)

Energy Factor

Recovery Efficiency (%)

Installation Cost (\$)

Additional Cost (\$)

Hot Water Equipment

If you consider replacing the water heater, this is where you enter information. Enter the indicated information. All data on the form is required if the unit is to be used in consideration of the water heater replacement measure in NEAT and MHEA.

Run Audit

Last Run On

Not Run at

Select the manufacturer, or enter a string

NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

All bold outlined boxes must have entry information.

NEAT Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Water Heating (0) Refrigerators (0) Lighting Systems (0)

Existing Equipment

Manufacturer Model

Style Defrost

Size (cu ft) Location Heated Space

Available Space Dimensions

Height (in) Width (in) Depth (in)

Consumption

Label/Database Annual Consumption

kWh/yr Age

Door Seal Condition

OR

Metered Consumption

Metering Minutes Manual Defrost

Meter Reading (kWh) Includes Defrost Cycle

Temperature (°F)

Adjusted Consumption (kWh/yr) Refresh

Replacement

Pick from Library

Manufacturer

Model

Style

Defrost

kWh/yr Size (cu ft)

Height (in) Width (in) Depth (in)

Installation Cost (\$)

Additional Cost (\$)

Adjusted Consumption (kWh/yr)

Annual Savings (kWh/yr)

Comment

Adjusted consumptions and savings reported on this form assume that the refrigerators are in heated spaces. Final calculations will be based on the actual location.

Run Audit

Last Run On

Not Run at

New Del

Testing is required on all refrigerators to be replaced in dwellings containing 1 -4 units.

Select the manufacturer, or enter a string

NUM

The screenshot shows the NEAT Audit software interface. At the top, a red box contains the instruction: **All Boxes must have entry information.**

The main window is titled "NEAT Audit" and contains the following fields and controls:

- Audit Name:** Audit (1)
- Client ID:** Client (1)
- Client Name:** [Empty]
- Alt. Client ID:** [Empty]
- Tabs:** Audit Information, Status, Shell, Heating (0), Cooling (0), Ducts/Infiltration, Baseloads, Health & Safety, Itemized Costs (0), Utility Bills (0), Photos (0), Measures (0)
- Sub-tabs:** Water Heating (0), Refrigerators (0), Lighting Systems (0)
- Existing Incandescent Light:**
 - Light Code:** [Empty]
 - Room:** [Dropdown]
 - Location:** [Dropdown]
 - Lamp Type:** [Dropdown]
 - Quantity:** [Empty]
 - Size (watts):** [Empty]
 - Use (hours/day):** [Empty]
- Replacement Compact Fluorescent Light (CFL):**
 - CFL Size (watts):** [Empty]
 - Additional Cost (\$/bulb):** [Empty]
- Buttons:** Run Audit, Last Run On, Not Run at
- Lighting System List:**
 - LIGHTING SYSTEM**
 - by Light Code: [Dropdown]
 - Navigation: [Previous], [Next], [First], [Last], [Refresh]
 - Page: 1 of 1
 - Buttons: New, Copy, Del
- Comment:** [Text Area]
- Status:** NUM

At the bottom of the window, a note reads: "Short code for the lighting system (must be unique for this Job) [Default LT1 (TAB on blank field to accept)]"

The screenshot shows the NEAT Audit software interface. At the top, there is a menu bar with options: File, Edit, View, Insert, Format, Records, Window, Help. Below the menu bar is a toolbar with various icons. The main window is titled "NEAT Audit" and contains several tabs: Audit Information, Status, Shell, Heating (0), Cooling (0), Ducts/Infiltration, Baseloads, Health & Safety, Itemized Costs (0), Utility Bills (0), Photos (0), and Measures (0). The "Shell" tab is selected, and within it, the "Building Shell" sub-tab is active. In the "Building Shell" section, there are two checkboxes: "Smoke Detector is Needed" and "CO Monitor is Needed", both of which are currently unchecked. Below these are four input fields for "Carbon Monoxide Measurements": "Room with Heating System (ppm)", "Room with Water Heater (ppm)", "Living Area (ppm)", and "Kitchen (ppm)". A red box highlights the "Smoke Detector is Needed" checkbox and the "Room with Water Heater (ppm)" input field. Two red arrows point from the text in the red box to these elements. The text in the red box reads: "Smoke and CO detectors must be entered under the health and safety library drop down box." and "This is an optional entry of carbon monoxide (CO) readings. All carbon monoxide test results must be collected on the 'Heating System and Hot Water Heater Improvement Survey Report'." To the right of the main form area, there is a vertical panel with buttons: "Run Audit", "Last Run On", "Not Run", and "at". At the bottom left of the window, a status bar displays the text "Smoke detectors are needed". At the bottom right, there is a label "NUM".

WA 8.9.0.5

File Edit View Insert Format Records Window Help

NEAT Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Whole House Equipment Building Shell

Worse Case Condition Draft Measurements

Space Heating System(s) (0)

Water Heating (0)

Wood Stove/Fireplace

Wood Stove/Fireplace is Present

Improper Venting

Combustion Air is Inadequate

Clothes Dryer

Improper Venting

Comment

Cook Stove

CO Measurement Oven (ppm)

CO Measurement Burner 1 (ppm)

CO Measurement Burner 2 (ppm)

CO Measurement Burner 3 (ppm)

CO Measurement Burner 4 (ppm)

Gas Leak Present

Exhaust Fans

Bathrooms Kitchen Air-to-Air Heat Exchanger

Missing Missing Exists

Not Operational Not Operational

Run Audit

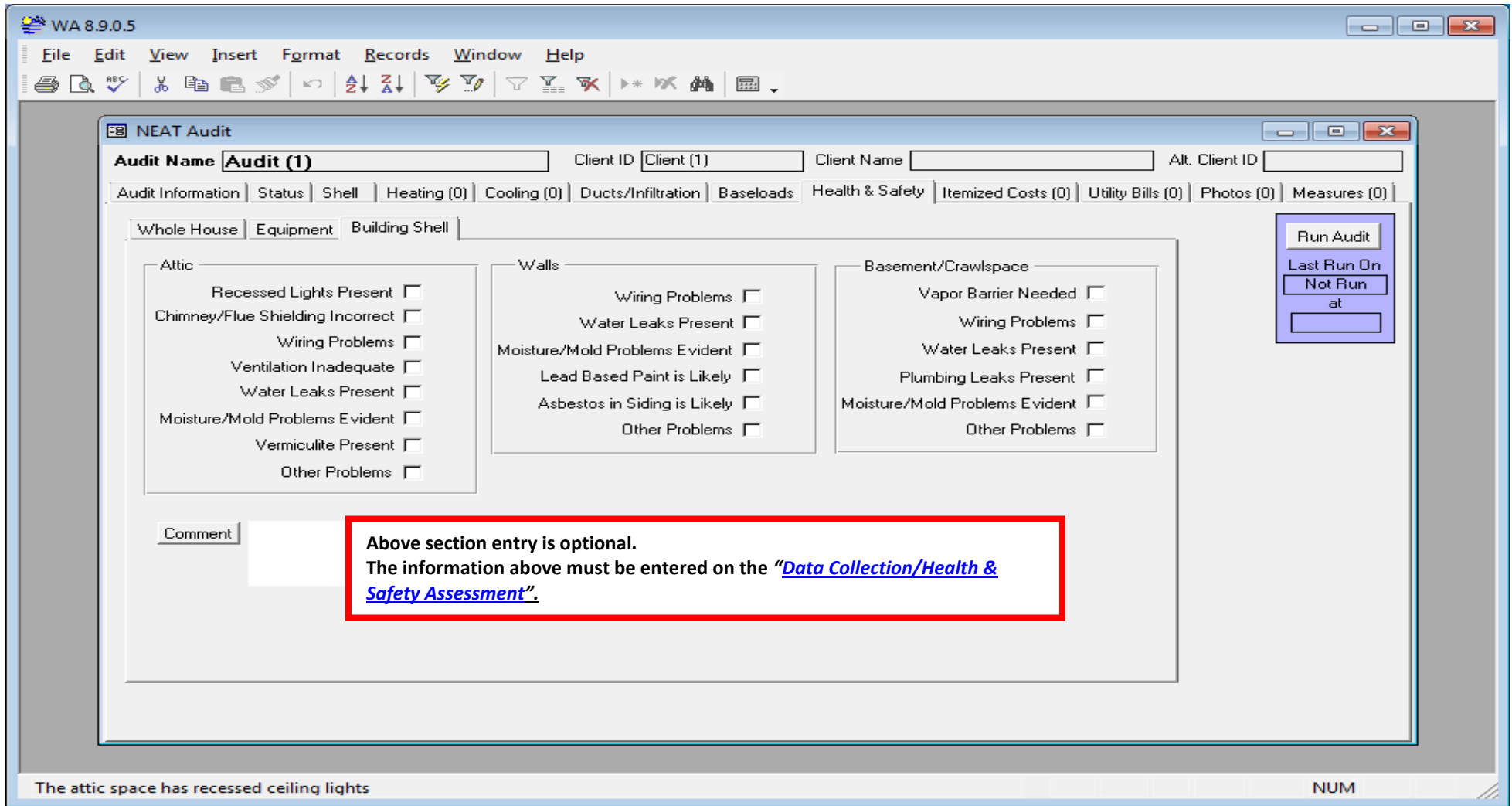
Last Run On

Not Run at

Is there a wood stove in the home?

Above section entry is optional.

- Cook stove carbon monoxide measurements must be entered on the "[Data Collection/Health & Safety Assessment](#)".
- Worse Case combustion appliance drafting measurements must be collected on the "[Heating System and Hot Water Heater Survey Report](#)".
- Exhaust Fan information must be entered on the "[ASHRAE 62.2-2013 Auditor/Inspector Checklist](#)" and the [Calculation Sheet](#). Exhaust Fan repair, replacement and or installment, must be entered under the Health and Safety Library drop down box.



NEAT Audit

Audit Name **Audit (1)** Client ID **Client (1)** Client Name Alt. Client ID

Audit Information | Status | Shell | Heating (0) | Cooling (0) | Ducts/Infiltration | Baseloads | Health & Safety | Itemized Costs (0) | Utility Bills (0) | Photos (0) | Measures (0)

Copy from User Defined Measures

Copy from Library Health and Safety Measures

Referenced User Defined Measure

Clear Reference to User Defined Measure

Run Audit

Last Run On

Not Run

at

Measure Name

Cost (\$) Include in SIR

Material

ITEMIZED COST

by Description

1 of 1 New Copy Del

Comment

Long description of itemized cost item (must be unique for this Job)

NUM

Choose **Health and Safety Measure** from drop down box. Enter cost of measure including material and labor. **Do not** check box "Include in SIR".

Note: Health and Safety measures should appear at the bottom of the Recommended Measure Report.

Incidental Repairs can only be entered as a measure if deemed necessary for the effectiveness of one or more ECM's. Enter cost of measure including material and labor. Check the "Include in SIR" box.

Note: A comment must be added to this section indicating the ECM address by the measure.

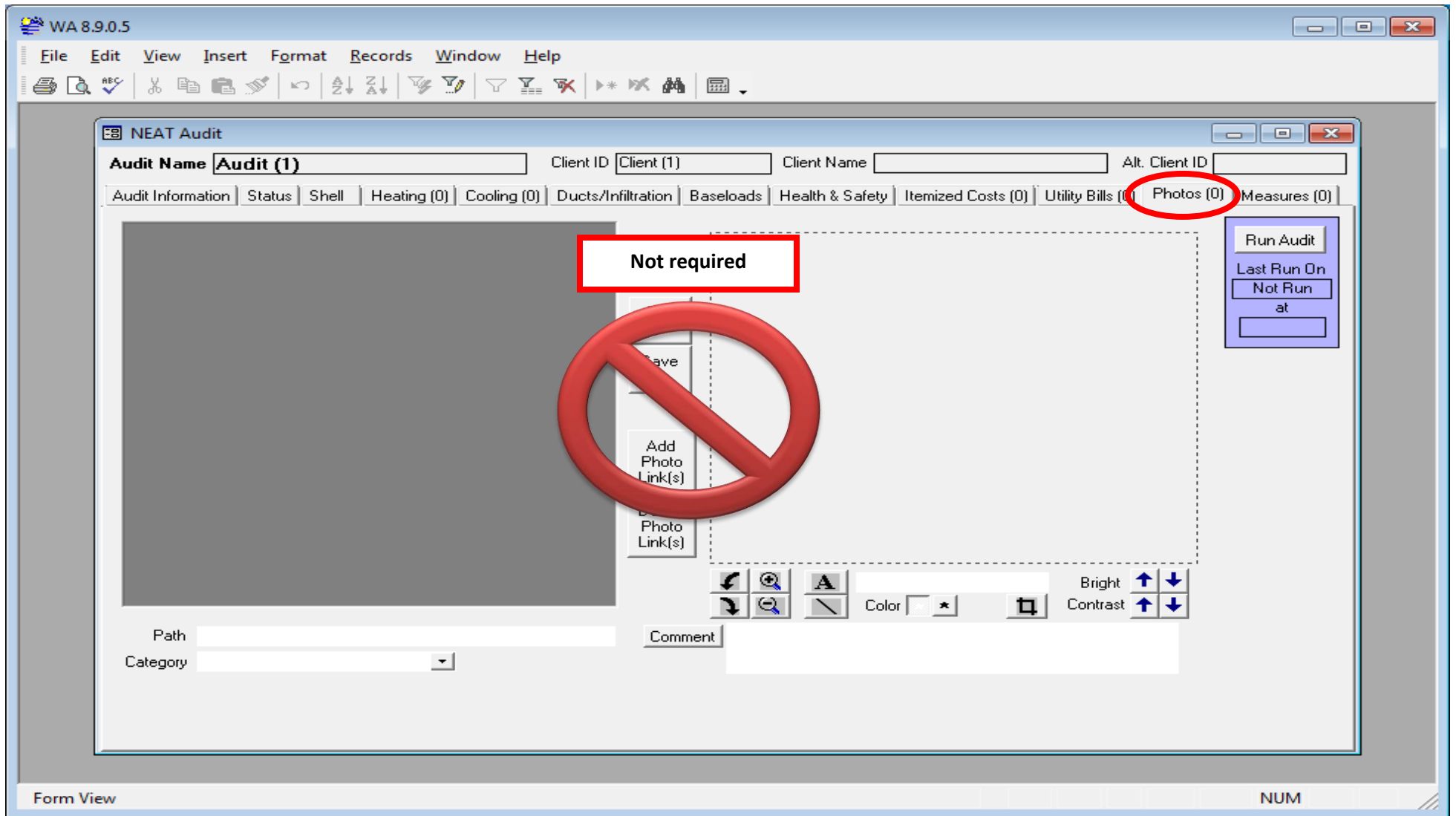
The screenshot shows the NEAT Audit software interface. At the top, there is a menu bar with options: File, Edit, View, Insert, Format, Records, Window, Help. Below the menu bar is a toolbar with various icons for file operations and editing. The main window is titled "NEAT Audit" and contains several input fields and tabs. The "Audit Information" tab is active, showing fields for "Audit Name" (Audit (1)), "Client ID" (Client (1)), "Client Name", and "Alt. Client ID". Below these are tabs for "Status", "Shell", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)".

On the left side, there are dropdown menus for "Type", "Period", and "Units", along with input fields for "Days in first period", "Degree Days", "Base Temperature (F)", "Base Load", and a "Comment" text area. On the right side, there are buttons for "Run Audit", "Last Run On", "Not Run", and "at".

In the center, there is a table with the following columns: #, Month, Day, Usage, and Degree Days. The table contains one row with values: # 0, Month 0, Day 0, Usage 0, Degree Days 0. A red box highlights the text "Utility bill entry is optional. Not a mandatory section." overlaid on the table.

At the bottom left, there is a "UTILITY BILLS" section with a "by Period" dropdown menu and a table with columns for navigation (back, forward, first, last, search) and "of 1". Below this are "New" and "Del" buttons. At the bottom right, there is a "NUM" label.

At the bottom of the window, there is a footer text: "Heating or cooling bills (the combination of Type and Period must be unique for this Job)".



2.2.MHEA

The Manufactured Home Energy Audit (MHEA) is a software tool that predicts manufactured home energy consumption and recommends weatherization retrofit measures. It was developed to assist local weatherization agencies working with the U.S. Department of Energy (DOE) Weatherization Assistance Program. Whether new or experienced, employed within or outside the weatherization assistance program, all users can benefit from incorporating MHEA into their manufactured home weatherization programs. DOE anticipates that the state weatherization assistance programs that incorporate MHEA into their programs will find significant growth in the energy and cost savings achieved from manufactured home weatherization.

The screenshot shows the MHEA Audit software interface. At the top, a red box contains the text: "All **bold outlined boxes** must have entry information." The main window is titled "MHEA Audit" and contains several sections:

- Audit Information:** Fields for Audit Name (Audit (1)), Client ID (Client (1)), Client Name, and Alt. Client ID.
- Navigation Tabs:** Audit Information, Status, Shell (0), Addition (0), Heating (0), Cooling (0), Ducts/Infiltration, Baseloads, Health & Safety, Itemized Costs (0), Utility Bills (0), Photos (0), Measures (0).
- Form Fields:** Length (ft), Width (ft), Exterior Wall Height (ft), Wind Shielding, Home Leaking, and Outdoor Water Heater Closet (checkbox).
- Libraries and Other Options:** Setup Library, Fuel Cost Library, Supply Library, Weather File, and Billing Adjustment.
- Economics Summary:** Measures Recommended, Total Initial Cost (\$), and Cumulative SIR.
- REPORT:** Select Report (Recommended Measures), Preview, Print, and Snapshot File.
- AUDIT:** Search filters by Audit Name, Client ID, Client Name, and Alternate Client ID.

Three red boxes with arrows point to specific fields:

- A box pointing to the "Outdoor Water Heater Closet" checkbox with the text: "Add comment here, if the household does not possess air conditioning or it has been removed for the winter season."
- A box pointing to the "Length (ft)" and "Width (ft)" fields with the text: "Indicate whether or not the water heater is housed in an unconditioned closet with an exterior access. If an outdoor closet exists, the calculations will not include it in the conditioned portion of the home. The wall, floor, and ceiling areas of the home are adjusted to account for the water heater closet."
- A box pointing to the "Home Leaking" dropdown menu.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

All **bold outlined boxes** must have entry information.

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Walls (0) Windows (0) Doors (0) Ceiling (0) Floor (0)

Wall Stud Size Orientation of Long Wall Wall Ventilation

Existing Insulation

Batt/Blanket (in) Loose Fill (in) Foam Core (in)

Carport/Porch Roof

Length (ft) Width (ft)

Run Audit

Last Run On

Not Run at

A manufactured home wall may be intentionally or unintentionally ventilated. A ventilated wall has a space for air to flow between the exterior and interior wall materials. One technique to determine if a wall is ventilated is to check if the wall insulation is dirty inside the wall cavity. Pull up slightly on the lower end of an exterior wall panel to check for dirty insulation. If a wall is ventilated, the insulation will be dirty. MHEA degrades the wall R-value for ventilated walls.

Uninsulatable Wall Area (sq ft) Additional Cost (\$) \$0.00

Comment

New Del

Wall stud size NUM

The screenshot shows the WA 8.9.0.5 software interface for an MHEA Audit. The main window contains several input fields and tabs. A red box at the top right states: "All boxes must have entry information." A red box points to the "Retrofit Options" dropdown menu with the text: "Retrofit Option, select 'Evaluate All'". A yellow box points to the "Leakiness" dropdown menu with the text: "Window Leakiness guidance go to waptac.org under Weatherization Assistant Support Material." A red box points to the "Average Size" section with the text: "Enter the approximate percentage of window area frequently shaded by eaves (typically 20%), porches (typically 100%), or other physical exterior barriers. Do not include the percent (%) sign." A red box at the bottom left points to the "WINDOW" tab with the text: "Open tab to enter additional window codes for different window types and or sizes." The interface includes a menu bar (File, Edit, View, Insert, Format, Records, Window, Help), a toolbar, and a main workspace with tabs for "Walls (0)", "Windows (0)", "Doors (0)", "Ceiling (0)", and "Floor (0)". The "Windows (0)" tab is active, showing fields for "Window Code", "Window Type", "Frame Type", "Glazing Type", "Interior Shading", "Exterior Shading", "Leakiness", "Average Size" (Width and Height in inches), and "Number Facing" (North, South, East, West). A "Retrofit Options" dropdown is also present. On the right side, there is a "Run Audit" button and a "Last Run On" field. At the bottom, there is a "Comment" field and a status bar with the text: "The short code identifying the window (must be unique for windows on this wall) [Default WD1 (TAB on blank field to acc NUM".

WA 8.9.0.5

File Edit View Insert Format Records Window Help

All bold outlined boxes must have entry information.

MHEA Audit

Audit Name **Audit (1)** Client ID **Client (1)** Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Walls (0) Windows (0) **Doors (0)** Ceiling (0) Floor (0)

Door Code Replacement Door Required

Type

Storm Door Present

Additional Cost (\$/door)

Size

Width (in) Height (in)

Number Facing

North South East West

DOOR

by Door Code

1 of 1 New Copy Del

Comment

The agency's assigned Monitor must approve the mobile home door replacement, before this box is checked.

Open tab to enter additional door codes for different door types and or sizes.

Short door code (must be unique for doors on this wall) [Default DR1 (TAB on blank field to accept)] NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Walls (0) Windows (0) Doors (0) Ceiling (0) Floor (0)

RoofType Roof Color Joist Size

Existing Insulation
 Batt/Blanket (in) 0
 Loose Fill (in) 0
 Foam Core (in) 0

Cathedral Ceiling (%) 0

Additional Cost (\$) \$0.00

Comment

New Del

Run Audit
 Last Run On
 Not Run
 at

Height of Bowstring Roof
 For Bowstring Roofs, enter the maximum height in inches of the roof above the ceiling, disregarding any existing insulation. This assists MHEA in determining the available space for additional insulation.

Enter the approximate percent floor area that lies beneath any portion of the manufactured home having a cathedral ceiling (a sloped ceiling where the roof and ceiling planes are parallel). For example, if a cathedral ceiling is above the living room and the living room floor area is about one third the total home floor area, the percent cathedral ceiling is about 33%.

The type of roof/ceiling construction NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

All bold outlined boxes must have entry information.

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Walls (0) Windows (0) Doors (0) Ceiling (0) Floor (0)

Floor Joist Direction Skirt Present

Floor Wing Description

Floor Joist Size Loose Insulation Thickness (in) 0 Batt/Blanket Insulation Location Batt/Blanket Thickness (in) 0

Floor Belly (Center) Description

Floor Joist Size Loose Insulation Thickness (in) 0

Belly Cavity Configuration Batt/Blanket Insulation Location

Condition of Belly Batt/Blanket Thickness (in) 0

Maximum Depth of Belly Cavity (in)

Comment Additional Cost (\$) \$0.00

New Del

MHEA needs the belly wrap condition to calculate the effectiveness of existing insulation in the floor/belly section. If the belly is in other than good condition and you anticipate having to insulate the belly, you may wish to include as "Additional Cost" the cost of repairing the belly. Or, you may include this cost as an "Itemized Cost".

Indicate whether or not a skirt exists around the exterior of the home. Research has shown that skirting only protects the manufactured home belly from exposure to the wind. If skirting exists, MHEA adjusts the exterior R-value to account for the absence of wind when the total R-value of the floor/belly section is calculated.

Floor joist direction. NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

MHEA Audit

Audit Name **Audit (1)** Client ID **Client (1)** Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Walls (0) Windows (0) Doors (0) Ceiling (0) Floor (0)

Wall Stud Size Addition Orientation Wall Ventilation Existing Insulation Batt/Blanket (in) Loose Fill (in) Foam Core (in) Additional Cost (\$) \$0.00 Comment New Del

Wall Configuration Interior Wall Max Height (ft) Min Height (ft)

Run Audit Last Run On Not Run at

Interior Wall Height
 Enter the height in feet of the addition walls. Because additions are usually constructed by the occupant, they are often uniquely designed. If the walls are of varying height, enter the maximum and minimum wall heights. If the walls are all the same height, enter the same value in both the maximum and minimum height fields.

Wall stud size NUM

The screenshot shows the WA 8.9.0.5 MHEA Audit software interface. At the top, the menu bar includes File, Edit, View, Insert, Format, Records, Window, and Help. The main window title is "MHEA Audit". Below the title bar, there are input fields for "Audit Name" (Audit (1)), "Client ID" (Client (1)), "Client Name", and "Alt. Client ID". A series of tabs are visible: "Audit Information", "Status", "Shell (0)", "Addition (0)", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)". The "Addition (0)" tab is circled in red. Below these tabs are sub-tabs for "Walls (0)", "Windows (0)", "Doors (0)", "Ceiling (0)", and "Floor (0)". The "Windows (0)" sub-tab is active, showing a form with fields for "Window Code", "Window Type", "FrameType", "Glazing Type", "Interior Shading", "Exterior Shading", "Leakiness", "Average Size" (Width and Height in inches), and "Number Facing" (North, South, East, West). A "Retrofit Options" dropdown menu is also present. A red box with an arrow points to this dropdown, containing the text "Retrofit Option select 'Evaluate All'". To the right of the main form is a vertical panel with buttons for "Run Audit", "Last Run On", "Not Run", and "at". At the bottom left, a "WINDOW" tab is highlighted, showing a list of window codes and a "New" button. A red box with an arrow points to the "New" button, containing the text "Open tab to enter additional window codes for different window types and or sizes." At the bottom of the window, there is a status bar with the text: "The short code identifying the window (must be unique for windows on this wall) [Default AWD1 (TAB on blank field to a NUM".

If there is an addition- **All boxes** must have entry information.

Retrofit Option select "Evaluate All"

Open tab to enter additional window codes for different window types and or sizes.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) **Addition (0)** Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Walls (0) Windows (0) Doors (0) Ceiling (0) Floor (0)

Door Code
Type
Storm Door Present Additional Cost (\$/door)

Size: Width (in) Height (in)
Number Facing: North South East West

DOOR
by Door Code Comment
1 of 1 New Copy Del

Run Audit
Last Run On
Not Run
at

Short door code (must be unique for doors on this wall) [Default ADR1 (TAB on blank field to accept)] NUM

If there is an addition- All **bold outlined boxes** must have entry information.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

If there is an addition- All **bold outlined boxes** must have entry information.

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) **Addition (0)** Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Walls (0) Windows (0) Doors (0) Ceiling (0) Floor (0)

Joist Size [dropdown]
Roof Color [dropdown]
Additional Cost (\$) \$0.00

Existing Insulation
Batt/Blanket (in) 0
Loose Fill (in) 0
Foam Core (in) 0

Run Audit
Last Run On
Not Run at

Comment [text area]

New Del

Roof/ceiling joist size NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

If there is an addition- All **bold outlined boxes** must have entry.

MHEA Audit

Audit Name **Audit (1)** Client ID **Client (1)** Client Name Alt. Client ID

Audit Information | Status | Shell (0) | **Addition (0)** | Heating (0) | Cooling (0) | Ducts/Infiltration | Baseloads | Health & Safety | Itemized Costs (0) | Utility Bills (0) | Photos (0) | Measures (0)

Walls (0) | Windows (0) | Doors (0) | Ceiling (0) | Floor (0)

FloorType Batt/Blanket Location

Floor Joist Size

Existing Insulation

Batt/Blanket (in)

Loosel Fill (in)

Floor Dimensions

Length (ft)

Width (ft)

Depth Available for Added Insulation (in)

Comment

New Del

Run Audit

Last Run On

Not Run

at

The floor construction type for the addition

NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Audit Name **Audit (1)** Client ID **Client (1)** Client Name Alt. Client ID

Audit Information | Status | Shell (0) | Addition (0) | **Heating (0)** | Cooling (0) | Ducts/Infiltration | Baseloads | Health & Safety | Itemized Costs (0) | Utility Bills (0) | Photos (0) | Measures (0)

Primary (0) | Secondary (0) | Replacement (0)

Equipment Type Tune-up Mandatory

Fuel

Capacity (kBtu/hr)

Efficiency

Efficiency Units

Duct Location

Duct Insulation Location

Heat Supplied (%)

Programmable Thermostat

Comment

New Del Operational Tests Vent Tests Furnace Components Inspections Thermostat

Run Audit

Last Run On Not Run at

Type of heating system NUM

All **bold outlined boxes** must have entry information.

If the "Replacement Requirement" option has been chosen, there must be documented justification and an S.I.R of 1.0 on the Recommended Measure Report.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

All **bold outlined boxes** must have entry information.

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) **Ducts/Infiltration** Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Primary (0) **Secondary (1)** Replacement (0)

Equipment Type Tune-up Mandatory

Capacity (kBtu/hr)

Efficiency

Efficiency Units

Duct Location

Duct Insulation Location

Floor Area Cooled (%)

Comment

New Del

Run Audit

Last Run On

Not Run at

Conversion of Room Air Conditioner EER to SEER
 $SEER = 0.9 * EER + 0.1$ Fan runs continuously
 $SEER = 1.2 * EER - 0.7$ Fan runs only when cooling

Type of cooling system NUM

The screenshot shows the MHEA Audit software interface. At the top, the title bar reads "WA 8.9.0.5". Below it is a menu bar with "File", "Edit", "View", "Insert", "Format", "Records", "Window", and "Help". A toolbar with various icons is located below the menu bar. The main window title is "MHEA Audit".

At the top of the main window, there are input fields for "Audit Name" (containing "Audit (1)"), "Client ID" (containing "Client (1)"), "Client Name", and "Alt. Client ID". Below these are several tabs: "Audit Information", "Status", "Shell (0)", "Addition (0)", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)".

Under the "Ducts/Infiltration" tab, there are three sub-tabs: "Primary (0)", "Secondary (0)", and "Replacement (0)". The "Replacement (0)" sub-tab is currently selected and circled in red. It contains the following fields:

- Equipment Type: A dropdown menu.
- Capacity (kBtu/hr): A text input field.
- Efficiency: A text input field.
- Efficiency Units: A dropdown menu.
- Floor Area Cooled (%): A text input field.
- Comment: A large text area.

At the bottom left of the main window are "New" and "Del" buttons. On the right side, there is a vertical panel with buttons: "Run Audit", "Last Run On", "Not Run", and "at".

A red-bordered box at the top right of the window contains the text: "If there is a secondary cooling source- All **bold outlined boxes** must have entry information." This box points to the "Secondary (0)" and "Replacement (0)" sub-tabs, which are also circled in red.

At the bottom of the window, the text "Type of cooling system" is on the left and "NUM" is on the right.

The screenshot shows the WA 8.9.0.5 MHEA Audit software interface. At the top, there is a menu bar with File, Edit, View, Insert, Format, Records, Window, and Help. Below the menu bar is a toolbar with various icons. The main window is titled "MHEA Audit" and contains several fields and tabs. The "Audit Name" field is set to "Audit (1)". The "Client ID" field is set to "Client (1)". The "Client Name" and "Alt. Client ID" fields are empty. The "Audit Information" tab is selected, and the "Ducts/Infiltration" sub-tab is active. The "Replacement (0)" sub-tab is also active. The "Replacement Required" checkbox is checked. The "Equipment Type" dropdown is set to "Replacement". The "Capacity (kBtu/hr)" field is empty. The "Efficiency" field is empty. The "Efficiency Units" dropdown is set to "None". The "Duct Location" dropdown is set to "None". The "Duct Insulation Location" dropdown is set to "None". The "Cost" section has "Labor (\$)" and "Material (\$)" fields, both empty. A red box highlights the top toolbar area with the text: "All **bold outlined boxes** must have entry information." Another red box highlights the "Replacement (0)" sub-tab with the text: "The 'Replacement Requirement' option for cooling is not allowable. OLIEC approval required." A red arrow points from this box to the "Replacement Required" checkbox. At the bottom of the window, there are labels "Type of cooling system" and "NUM".

The screenshot shows the MHEA Audit software interface. At the top, there is a menu bar (File, Edit, View, Insert, Format, Records, Window, Help) and a toolbar. The main window is titled "MHEA Audit" and contains several tabs: "Audit Information", "Status", "Shell (0)", "Addition (0)", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)". The "Ducts/Infiltration" tab is active, showing sub-tabs for "Air and Duct Leakages", "Optional Blower Door and Zonal Pressures (0)", "Optional Pressure Balance (0)", and "Optional Pressure Pans (0)".

Key elements and annotations:

- Evaluate Duct Sealing:** A checkbox is circled in red. A red arrow points from it to a callout box at the bottom left.
- Whole House Blower Door Measurements:** A section with two columns: "Before Weatherization (Existing)" and "After Weatherization (Target or Actual)". It includes input fields for "Air Leakage Rate (cfm) at House Pressure Difference (Pa)". A red arrow points from this section to a callout box at the top right.
- Costs:** A section with an input field for "Infiltration Reduction (\$)" and a "Comment" text area. A red arrow points from this section to a callout box at the bottom right.
- Run Audit:** A button on the right side of the window.
- Callout Boxes:** Three red-bordered boxes with black text provide instructions:
 - Top right: "Both 'Before Weatherization' and 'After Weatherization' blower door measurement must be entered."
 - Bottom left: "Use of measured duct leakage data is an optional feature in MHEA. If not selected, the form presented will only address infiltration, not duct leakage data. If duct leakage reduction measures have been performed, a cost box will appear enter the total (labor and materials) dollar cost of the work. The entry is required."
 - Bottom right: "Infiltration reduction measures associated with the cost must be listed in the comment section. Infiltration reduction must achieve an S.I.R of 1.0 on the Recommended Measure Report."

At the bottom of the window, there is a status bar with the text "Pre infiltration reduction Whole House blower door test (CFM) [Min 500 ,Max 8000]" and a "NUM" label.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Entry is optional for additional diagnostic testing.

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Air and Duct Leakages Optional Blower Door and Zonal Pressures (0) Optional Pressure Balance (0) Optional Pressure Pans (0)

Date 6/19/2014

Conducted During

Equipment Used

Blower Door Measurements

Air Leakage Rate (CFM)

Building Pressure Differential (Pa)

Calculate Corrected CFM at 50 Pa

ZONAL Pressure Readings for: This Blower Door Test (0) Whole Audit (0)

Pressure PAN Readings for: This Blower Door Test (0) Whole Audit (0)

BLOWER DOOR TEST

by Date

1 of 1 New Copy Del

Comment

Run Audit

Last Run On

Not Run at

When were the blower door/zonal pressure readings taken NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Entry is optional for additional diagnostic testing.

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Air and Duct Leakages Optional Blower Door and Zonal Pressures (0) Optional Pressure Balance (0) Optional Pressure Pans (0)

Location+	Initial Pressure (Pa)	Final Pressure (Pa)	<Comment>

Run Audit
Last Run On
Not Run
at

Record: 1 of 1

A description of the zone where the pressure reading was taken NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Entry is optional for additional diagnostic testing.

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Air and Duct Leakages Optional Blower Door and Zonal Pressures (0) Optional Pressure Balance (0) Optional Pressure Pans (0)

Register #	Location+	Register Type^	Initial Pressure (Pa)	Final Pressure (Pa)	<Comment>

Record: 1 of 1

The register number NUM

Run Audit
Last Run On
Not Run
at

All bold outlined boxes must have entry information.

Hot Water Equipment
 If you consider replacing the water heater, this is where you enter information. Enter the indicated information. All data on the form is required if the unit is to be used in consideration of the water heater replacement measure in NEAT and MHEA.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Water Heating (0) Refrigerators (0) Lighting Systems (0)

Existing Equipment

Manufacturer Model

Fuel Rated Input

Location Input Units

Size (gal) Energy Factor

Water Heater Wrap Present Recovery Efficiency (%)

Water Heater Pipe Insulation Present

Original Tank Insulation

R Value Thickness (in) Type

Shower Heads

Number of ShowerHeads Avg. GPM

Shower Use (min/day)

Comment

New Del Optional Water Heater Details Operational Tests Vent Tests Inspections

Run Audit

Last Run On

Not Run at

Select the manufacturer, or enter a string NUM

The screenshot shows the MHEA Audit software interface. At the top, there is a menu bar with options: File, Edit, View, Insert, Format, Records, Window, Help. Below the menu bar is a toolbar with various icons. The main window is titled "MHEA Audit" and contains several input fields and buttons. A red box highlights the text "All bold outlined boxes must have entry information." in the top right corner. Another red box highlights the text "Testing is required on all refrigerators to be replaced in dwellings containing 1 -4 units." at the bottom, with an arrow pointing to the "Include Defrost Cycle" checkbox. The interface includes sections for "Existing Equipment" and "Replacement" with various dropdown menus and text boxes. A "Run Audit" button is visible on the right side.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Water Heating (0) Refrigerators (0) Lighting Systems (0)

Existing Equipment

Manufacturer Model

Style Defrost

Size (cu ft) Location Heated Space

Available Space Dimensions

Height (in) Width (in) Depth (in)

Consumption

Label/Database Annual Consumption

kWh/yr Age

Door Seal Condition

OR

Metered Consumption

Metering Minutes

Meter Reading (kWh)

Temperature (°F)

Adjusted Consumption (kWh/yr) Refresh

Manual Defrost

Include Defrost Cycle

New Del

Replacement

Pick from Library

Manufacturer

Model

Style

Defrost

kWh/yr Size (cu ft)

Height (in) Width (in) Depth (in)

Installation Cost (\$)

Additional Cost (\$)

Adjusted Consumption (kWh/yr)

Annual Savings (kWh/yr)

Comment

Adjusted consumptions and savings reported on this form assume that the refrigerators are in heated spaces. [unclear] will be based on the actual location.

Run Audit

Last Run On

Not Run at

Select the manufacturer, or enter a string NUM

All **bold outlined boxes** must have entry information.

Testing is required on all refrigerators to be replaced in dwellings containing 1 -4 units.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

All boxes must have entry information.

MHEA Audit

Audit Name Client ID Client Name Alt. Client ID

Audit Information | Status | Shell (0) | Addition (0) | Heating (0) | Cooling (0) | Ducts/Infiltration | Baseloads | Health & Safety | Itemized Costs (0) | Utility Bills (0) | Photos (0) | Measures (0)

Water Heating (0) | Refrigerators (0) | Lighting Systems (0)

Existing Incandescent Light

Light Code

Room

Location

Lamp Type

Quantity

Size (watts)

Use (hours/day)

Replacement Compact Fluorescent Light (CFL)

CFL Size (watts)

Additional Cost (\$/bulb)

Run Audit

Last Run On

Not Run at

LIGHTING SYSTEM

by Light Code

1 of 1 New Copy Del

Comment

Short code for the lighting system (must be unique for this Job) [Default LT1 (TAB on blank field to accept)]

NUM

The screenshot shows the MHEA Audit software interface. At the top, there is a menu bar with options: File, Edit, View, Insert, Format, Records, Window, Help. Below the menu bar is a toolbar with various icons. The main window is titled "MHEA Audit" and contains several input fields: "Audit Name" (Audit (1)), "Client ID" (Client (1)), "Client Name", and "Alt. Client ID". Below these fields are several tabs: "Audit Information", "Status", "Shell (0)", "Addition (0)", "Heating (0)", "Cooling (0)", "Ducts/Infiltration", "Baseloads", "Health & Safety", "Itemized Costs (0)", "Utility Bills (0)", "Photos (0)", and "Measures (0)". The "Health & Safety" tab is selected, showing a "Whole House" section with "Equipment" and "Building Shell" sub-sections. Under "Building Shell", there are two checkboxes: "Smoke Detector is Needed" and "CO Monitor is Needed", both of which are unchecked. Below these are "Carbon Monoxide Measurements" with four input fields: "Room with Heating System (ppm)", "Room with Water Heater (ppm)", "Living Area (ppm)", and "Kitchen (ppm)". A "Comment" field is also present. On the right side of the window, there is a "Run Audit" button and a "Last Run On" field with a "Not Run at" button. A red box highlights the "Smoke Detector is Needed" and "CO Monitor is Needed" checkboxes, with a red arrow pointing to them from the text: "Smoke and CO detectors must be entered under the health and safety library drop down box." Another red box highlights the "Carbon Monoxide Measurements" input fields, with a red arrow pointing to them from the text: "This is an optional entry of carbon monoxide (CO) readings. All carbon monoxide test results must be collected on the 'Heating System and Hot Water Heater Improvement Survey Report'." At the bottom left of the window, the text "Smoke detectors are needed" is displayed. At the bottom right, the text "NUM" is displayed.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Whole House Equipment Building Shell

Worse Case Condition Draft Measurements

Space Heating System(s) (0)

Water Heating (0)

Wood Stove/Fireplace

Wood Stove/Fireplace is Present

Improper Venting

Combustion Air is Inadequate

Clothes Dryer

Improper Venting

Comment

Cook Stove

CO Measurement Oven (ppm)

CO Measurement Burner 1 (ppm)

CO Measurement Burner 2 (ppm)

CO Measurement Burner 3 (ppm)

CO Measurement Burner 4 (ppm)

Gas Leak Present

Exhaust Fans

Bathrooms Kitchen

Missing Missing

Not Operational Not Operational

Improper Venting Improper Venting

Run Audit

Last Run On

Not Run at

Is there a wood stove in the home?

Above section entry is optional.

- Cook stove carbon monoxide measurements must be entered on the *[“Data Collection/Health & Safety Assessment”](#)*.
- Worse Case combustion appliance drafting measurements must be collected on the *[“Heating System and Hot Water Heater Survey Report”](#)*.
- Exhaust Fan information must be entered on the *[“ASHRAE 62.2-2013 Auditor/Inspector Checklist”](#)* and the *[Calculation Sheet](#)*. Exhaust Fan repair, replacement and or installment, must be entered under the Health and Safety Library drop down box.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

MHEA Audit

Audit Name **Audit (1)** Client ID Client (1) Client Name Alt. Client ID

Audit Information Status Shell (0) Addition (0) Heating (0) Cooling (0) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (0) Utility Bills (0) Photos (0) Measures (0)

Whole House Equipment Building Shell

Attic

- Recessed Lights Present
- Chimney/Flue Shielding Incorrect
- Wiring Problems
- Ventilation Inadequate
- Water Leaks Present
- Moisture/Mold Problems Evident
- Other Problems

Walls

- Wiring Problems
- Water Leaks Present
- Moisture/Mold Problems Evident
- Other Problems

Crawlspace

- Vapor Barrier Needed
- Wiring Problems
- Water Leaks Present
- Plumbing Leaks Present
- Moisture/Mold Problems Evident
- Other Problems

Run Audit

Last Run On

Not Run

at

Comment

**Above section entry is optional.
The information above must be entered on the ["Data Collection/Health & Safety Assessment"](#).**

The attic space has recessed ceiling lights NUM

The screenshot shows the 'MHEA Audit' window in a software application. At the top, there is a menu bar (File, Edit, View, Insert, Format, Records, Window, Help) and a toolbar with various icons. Below the menu, the 'Audit Name' is set to 'Audit (1)'. Other fields include 'Client ID' (Client (1)), 'Client Name', and 'Alt. Client ID'. A series of tabs are visible: 'Audit Information', 'Status', 'Shell (0)', 'Addition (0)', 'Heating (0)', 'Cooling (0)', 'Ducts/Infiltration', 'Baseloads', 'Health & Safety', 'Itemized Costs (0)', 'Utility Bills (0)', 'Photos (0)', and 'Measures (0)'. The 'Health & Safety' tab is active. In this tab, there are two dropdown menus for 'Copy from User Defined Measures' and 'Copy from Library Health and Safety Measures'. A 'Referenced User Defined Measure' field is also present with a 'Clear Reference to User Defined Measure' button. A 'Run Audit' button is on the right. Below these are fields for 'Measure Name', 'Cost (\$)', 'Material', and an 'Include in SIR' checkbox. At the bottom left, there is an 'ITEMIZED COST' section with a 'by Description' dropdown, a list of items (currently showing '1'), and buttons for 'New', 'Copy', and 'Del'. A 'Comment' field is on the right. A red callout box with a white background and a red border contains the following text:

Choose **Health and Safety Measure** from drop down box. Enter cost of measure including material and labor. **Do not** check box "Include in SIR".
 Note: Health and Safety measures should appear at the bottom of the Recommended Measure Report.

Incidental Repairs can only be entered as a measure if deemed necessary for the effectiveness of one or more ECM's. Enter cost of measure including material and labor. Check the "Include in SIR" box.

Note: A comment must be added to this section indicating the ECM address by the measure.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

MHEA Audit

Audit Name Client ID Client Name Alt. Client ID

Audit Information | Status | Shell (0) | Addition (0) | Heating (0) | Cooling (0) | Ducts/Infiltration | Baseloads | Health & Safety | Itemized Costs (0) | Utility Bills (0) | Photos (0) | Measures (0)

Type
 Period
 Units
 Days in first period
 Degree Days
 Base Temperature (F)
 Base Load
 Comment

#	Month	Day	Usage	Degree Days
▶ 0	0	0	0	0

Record: 1 of 1

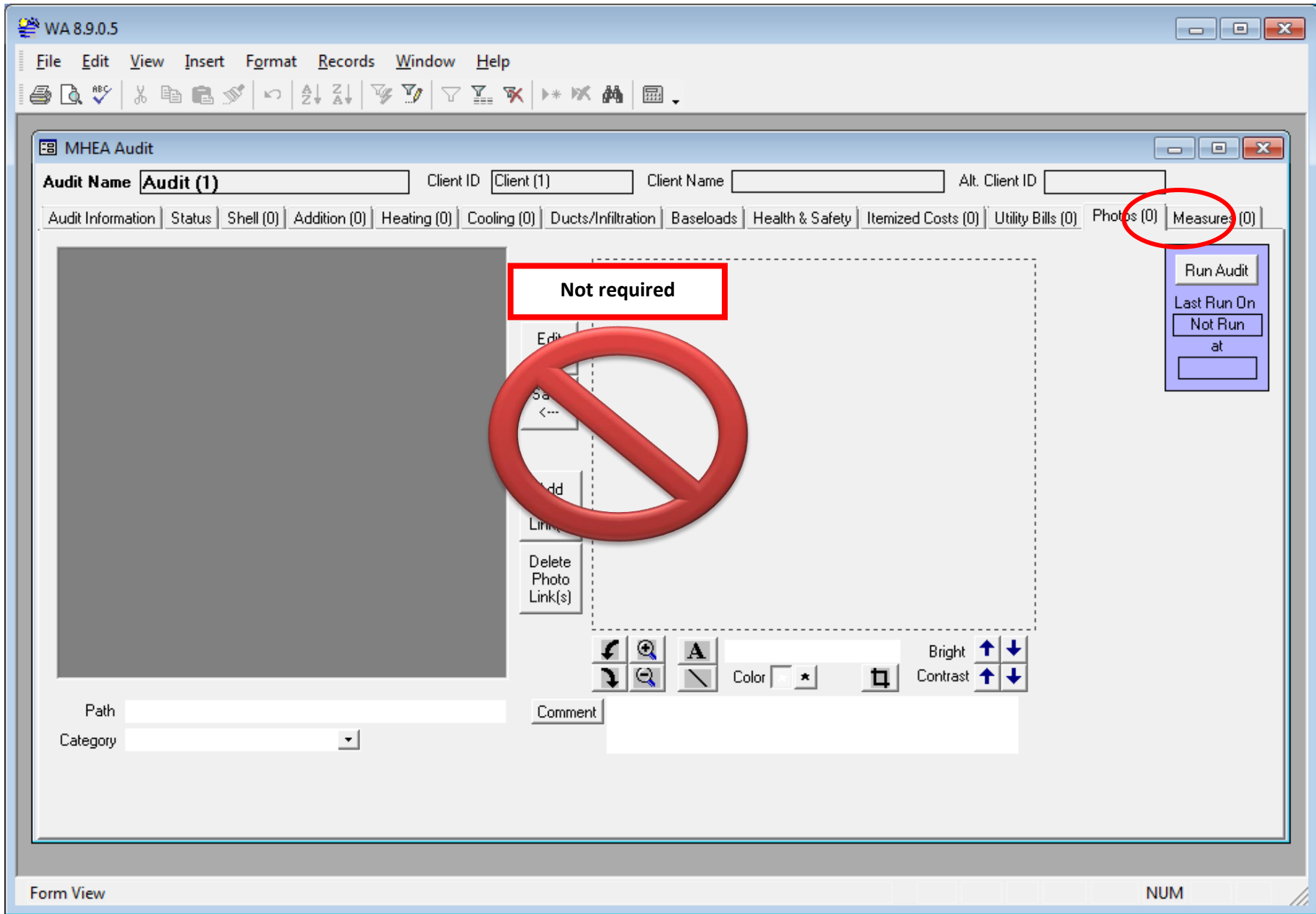
UTILITY BILLS

by Period

1 of 1

Run Audit
 Last Run On
 Not Run
 at

Heating or cooling bills (the combination of Type and Period must be unique for this Job) NUM



When developing your audit library, please note that the following measures can be turned off:

NEAT

- R49 Insulation Measures- turn off.
- Window sealing – turn off so that caulking, weather-stripping, and sealing windows that aren't receiving any other window treatment (replacement) are just air sealed as part of general infiltration work.
- Storm windows – turn off
- Window replacement – turn off. Turn on Low-e window.
- Window shading (awning) – turn off. Primarily used in southern climates.
- Heating system measures (thermal vent damper, electric vent damper, IID, electric vent damper with IID, flame retention burner, furnace tune up, high efficiency furnace, and high efficiency boiler) - turn off. Use Home Energy and or Heating Improvement Program funds.
- Smart thermostat - turn off only if handled under Home Energy and or HIP.
- Cooling system measures (tune AC, replace AC, evaporative cooler, and install/replace heat pumps) – turn off. Use HIP funding with OLIEC approval only.
- Water heater replacement – turn off. Use Home Energy and or HIP funding.

If HIP funding is not available, turn on “Heating system and or Water heater measures”. If replacement/repair is recommended under a shell grant (LIHEAP/DOE). The measure must have a Savings to Investment Ratio (SIR) of 1% or greater to proceed. If the measure is considered a health and safety measure attached to a LIHEAP/DOE job, it must be justified under Chapter 3 policy protocols.

MHEA

- Wall/Floor/Roof insulation measures – Turn off cellulose insulation. Leave fiberglass insulation on.
- Replace marked door mandatory – if not cost effective as a retrofit measure, can be done as general air sealing if air leakage around the door is excessive (must be justified with photo documentation of pre-condition).
- Window sealing – turn off so that caulking, weather-stripping, and sealing windows that aren't receiving any other window treatment (replacement) are just air sealed as part of general infiltration work.
- Plastic storm windows – turn off.
- Glass storm windows – turn off.
- Awnings and shade screens – turn off. Primarily used in southern climates.
- White roof coating – turn off. Primarily used in southern climates.
- Heating system measures (thermal vent damper, electric vent damper, IID, electric vent damper with IID, flame retention burner, furnace tune up, high efficiency furnace, and high efficiency boiler) - turn off. Use Home Energy and or Heating Improvement Program funds.
- Smart thermostat - turn off only if handled under Home Energy and or HIP.
- Cooling system measures (tune AC, replace AC, evaporative cooler, and install/replace heat pumps) – turn off. Use HIP funding with OLIEC approval only.
- Water heater replacement – turn off. Use Home Energy and or HIP funding.

If HIP funding is not available, turn on “Heating system and or Water heater measures”. If replacement/repair is recommended under a shell grant (LIHEAP/DOE). The measure must have a Savings to Investment Ratio (SIR) of 1% or greater to proceed. If the measure is considered a health and safety measure attached to a LIHEAP/DOE job, it must be justified under Chapter 3 policy protocols.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Setup Library

Library Name **Your Setup Library** References

Setup Library Information | Key Parameters | Fuel Costs (1) | Fuel Price Indices | Library Measures | User Defined Measures (0) | NEAT Insulation Types

Library Name **Your Setup Library**

Agency **Your Agency** State **US**

<Supply Library> **Your Supply Library**

Description

Comment

SETUP LIBRARY

by Library Name

1 of 1 New Copy Del

REPORT

Select Report **Library Measure Costs**

Preview Print Snapshot File

All **bold outlined boxes** must have entry information.

Navigate to this Record NUM

The screenshot shows the 'Setup Library' window in WA 8.9.0.5. The 'Library Name' is 'Your Setup Library'. The 'Set Points' tab is highlighted with a red circle. Below the tabs is a table with the following data:

Name	Value	Units
Real discount rate	8	%
Minimum acceptable SIR	1	Factor

A red callout box with an arrow pointing to the table contains the text: "These values remain the same. Do not alter."

At the bottom of the window, there is a status bar with the text "Numeric value of the defined parameter" on the left and "NUM" on the right.

The screenshot shows the 'Setup Library' dialog box in the WA 8.9.0.5 software. The 'Library Name' is 'Your Setup Library'. The 'Insulation' tab is selected and circled in red. Below the tabs is a table with the following data:

Name	Value	Units
▶ Heating setpoint (daytime)	68	deg F
Heating setpoint (nighttime)		deg F
Cooling setpoint (daytime)	78	deg F
Cooling setpoint (nighttime)	78	deg F
Night setback	3	deg F

At the bottom of the dialog, there is a 'NEAT' section with a 'VIEW' button and a dropdown menu showing 'Site Built (NEAT) Key Parameters'. The status bar at the bottom of the window displays 'Numeric value of the defined parameter' and 'NUM'.

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Setup Library

Library Name: Your Setup Library

References

Setup Library Information Key Parameters Fuel Costs (1) Fuel Price Indices Library Measures User Defined Measures (0) NEAT Insulation Types

Economics Set Points Insulation Equipment Windows

Name	Value	Units
Avg annual outside film coeff	2.25	BTU/hr-sqft-F
Uninsulated R-value for 'Other' wall type	4.42	F-sqft-hr/Btu
R-value for 'Other' exterior siding type"	0.6	F-sqft-hr/Btu
R-value per Inch for the 'Other' existing ceiling insulation type	3.09	F-sqft-hr/Btu-in
Added duct insulation R value	7	F-sqft-hr/Btu
Water heater wrap added R value	7	F-sqft-hr/Btu
Base value of free heat from internals	2600	BTU/hr

Record: 1 of 7

NEAT

VIEW Site Built (NEAT) Key Parameters

Numeric value of the defined parameter NUM

"Duct insulation and Water heater wrap R values" should be updated based on "NJ Field Guide/Material Standards".

The screenshot shows the 'Setup Library' dialog box in the WA 8.9.0.5 software. The 'Library Name' is 'Your Setup Library'. The 'Equipment' tab is selected and circled in red. The table below lists various parameters with their values and units.

Name	Value	Units
Window A/C replacement SEER	11	Btu/wh
Central A/C replacement SEER	13	Btu/wh
Heat pump replacement SEER (Cooling)	13	Btu/wh
SEER used to impute cooling savings	13	na
Low flow shower head flow rate	2.5	gal/min
Refrigerator defrost cycle energy	0.08	kWh

Record: 1 of 6

VIEW Site Built (NEAT) Key Parameters

Numeric value of the defined parameter NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Setup Library

Library Name **Your Setup Library** References

Setup Library Information Key Parameters Fuel Costs (1) Fuel Price Indices Library Measures User Defined Measures (0) NEAT Insulation Types

Economics Set Points Insulation Equipment **Windows**

Name	Value	Units
▶ Replacement Window U-Value	0.46	Btu/F-sqft-hr
Replacement Window Solar Heat Gain Coefficient	0.62	na
Replacement LowE Window U-Value	0.42	Btu/F-sqft-hr
Replacement LowE Window Solar Heat Gain Coefficient	0.42	na
Retrofit Storm Window Emittance	0.82	na
Retrofit Storm Window Solar Heat Gain Coefficient	0.89	na
Retrofit Window Film Surface Emittance	0.84	na
Retrofit Window Film Solar Heat Gain Coefficient (incl frame)	0.49	na

Record: 1 of 8

NEAT

VIEW Site Built (NEAT) Key Parameters

Numeric value of the defined parameter NUM

Windows Enter data which describes the replacement windows you have in your inventory. Most of the information requested can be found on the new window label.

- Enter the U-Value of the Replacement Window.

The screenshot shows the 'Setup Library' window in a software application. The 'Library Name' is 'Your Setup Library'. The 'Fuel Costs (1)' tab is selected. The 'Fuel Cost Table Name' is 'Default Costs' with a comment 'Average National Fuel Costs'. A table lists fuel types and their unit costs and heat contents. Annotations include: 'Fuel Costs: This is where you enter the various fuel cost rates in your area. If the agency has multiple service areas with different fuel costs you can give each set of fuel prices a name and any number of fuel cost sets can be added to the setup library.'; 'DO NOT ALTER the Heat Content (MMBtu).'; and 'Conversion required: the unit cost per therm x 10.25 = Mcf'. A 'FUEL COSTS' panel at the bottom shows 'by Name' and '1 of 1'.

Library Name: Your Setup Library

Fuel Cost Table Name: Default Costs

Comment: Average National Fuel Costs

Fuel Type	In Units of	Unit Cost	Heat Content (MMBtu)
Natural Gas	Mcf	14.230	1.000000
Oil	Gallon	3.710	0.140000
Electricity	kWh	0.110	0.003413
Propane	Gallon	2.600	0.090000
Wood	Cord	13.000	20.200000
Coal	Ton	16.000	21.000000
Kerosene	Gallon	3.710	0.130000
Other	MMBtu	1.250	1.000000

FUEL COSTS
by Name [dropdown]
1 of 1 Copy Del

Annotations:

- Fuel Costs:** This is where you enter the various fuel cost rates in your area. If the agency has multiple service areas with different fuel costs you can give each set of fuel prices a name and any number of fuel cost sets can be added to the setup library.
- DO NOT ALTER the Heat Content (MMBtu).**
- Conversion required:** the unit cost per therm x 10.25 = Mcf

Footer: Name of the fuel costs record (e.g. a utility) NUM

WA 8.9.0.5

File Edit View Insert Format Records Window Help

Setup Library

Library Name: **Your Setup Library** References

Setup Library Information | Key Parameters | Fuel Costs (1) | **Fuel Price Indices** | Library Measures | User Defined Measures (0) | NEAT Insulation Types

Fuel Type	Year	Price Index	UPW Factor
Natural Gas	0	1.00	1.00
Natural Gas	1	0.97	0.94
Natural Gas	2	0.97	1.85
Natural Gas	3	0.96	2.73
Natural Gas	4	0.96	3.58
Natural Gas	5	0.97	4.42
Natural Gas	6	0.98	5.24
Natural Gas	7	1.00	6.05
Natural Gas	8	1.01	6.85
Natural Gas	9	1.03	7.64
Natural Gas	10	1.05	8.42
Natural Gas	11	1.07	9.19
Natural Gas	12	1.09	9.96
Natural Gas	13	1.11	10.71
Natural Gas	14	1.13	11.46
Natural Gas	15	1.14	12.19
Natural Gas	16	1.16	12.92
Natural Gas	17	1.17	13.62
Natural Gas	18	1.18	14.32
Natural Gas	19	1.19	15.00
Natural Gas	20	1.20	15.66
Natural Gas	21	1.22	16.32
Natural Gas	22	1.23	16.96

Record: 1 of 208

Fuel price escalation Rate factor (multiplier to previous year's fuel cost) NUM

Fuel Price Indices: DO NOT MODIFY. This tab shows the fuel price escalation index values for each fuel for the current year out to 25 years. These values are based on US average fuel price escalation factors released by the Energy Information Agency (EIA).

Weatherization agencies must update libraries immediately when prices for materials and/or labor have changed.

Life (yr) of measure must remain as the default setting unless approved by OLIEC.

You can use the Active flag to turn on/off the consideration of individual measures. Measures that are deactivated must be justified in the comment section of that specific measure.

All Library Measure Costs-Selecting the All Library Measure Costs button presents you with a form view of all measures' costing components in a single window. See below for Cost Detail for all library measures.

#	Measure Type	Measure Name	Active	Default Contractor	Default Cost Center	Life (yr)	Costs
1	Building Insulation	Attic insulation R11	<input checked="" type="checkbox"/>			20	Costs
2	Building Insulation	Attic insulation R19	<input checked="" type="checkbox"/>			20	Costs
3	Building Insulation	Attic insulation R30	<input checked="" type="checkbox"/>			20	Costs
4	Building Insulation	Attic insulation R38	<input checked="" type="checkbox"/>			20	Costs
5	Building Insulation	Attic insulation R49	<input checked="" type="checkbox"/>			20	Costs
6	Building Insulation	Fill ceiling cavity	<input checked="" type="checkbox"/>			20	Costs
7	Building Insulation	Sillbox insulation	<input checked="" type="checkbox"/>			20	Costs
8	Building Insulation	White roof coating	<input checked="" type="checkbox"/>			7	Costs
9	Building Insulation	Foundation wall insulation	<input checked="" type="checkbox"/>			20	Costs
10	Building Insulation	Floor insulation R11	<input checked="" type="checkbox"/>			20	Costs
11	Building Insulation	Floor insulation R19	<input checked="" type="checkbox"/>			20	Costs
12	Building Insulation	Floor insulation R30	<input checked="" type="checkbox"/>			20	Costs
13	Building Insulation	Floor insulation R38	<input checked="" type="checkbox"/>			20	Costs

Record: 1 of 45

VIEW: Site Built (NEAT) Measures

Select All UnSelect All Invert Select All Library Measure Costs

Cost Detail for all library measures

NEAT	MHEA	#	Description	Type	Units	Unit\$	<Comment>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Attic Insulation -Cellulose, Blown - R-11		SqFt	0.11	ENTER COST BY UNIT WITH MATERIAL
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1			SqFt	0.22	AS THE TOP COST
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1			Each Attic	0.00	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Attic Insulation -Fiberglass, Blown - R-11		SqFt	0.14	Material Cost
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1			SqFt	0.22	Labor Cost
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1			Each Attic	0.00	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2	Attic Insulation -Cellulose, Blown - R-19		SqFt	0.19	COST FOR INSULATION NEED TO INCREASE
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2			SqFt	0.38	AS R-VALUE INCREASES
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2			Each Attic	0.00	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2	Attic Insulation -Fiberglass, Blown - R-19		SqFt	0.22	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2			SqFt	0.38	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2			Each Attic	0.00	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3	Attic Insulation -Cellulose, Blown - R-30		SqFt	0.30	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3			SqFt	0.60	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3			Each Attic	0.00	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3	Attic Insulation -Fiberglass, Blown - R-30		SqFt	0.33	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3			SqFt	0.60	

Record: 9 of 332

The screenshot shows the 'Setup Library' window with the following details:

- Library Name:** Your Setup Library
- References:** User Defined Measures (0) (highlighted with a red circle)
- Setup Library Information:** Key Parameters, Fuel Costs (1), Fuel Price Indices, Library Measures, NEAT Insulation Types
- Measure #:** [blank] **Active:** **Include In SIR:** **Energy Savings:** No Energy Savings
- MeasureType:** [dropdown]
- Measure Name:** [text field]
- Default Contractor/Crew:** [dropdown]
- Default Cost Center:** [dropdown]
- Materials/Labor Details:** Available for Use In: Site Built Mobile Home
- Table:**

#	Type^	Copy Supply^	Description	Qty	Units+	\$/Unit	<Comment>
1				1.00		0.00	
- MEASURES:** by Description [dropdown], 1 of 1, New, Copy, Del
- VIEW:** Site Built (NEAT) Measures (highlighted with a red arrow)
- Buttons:** All User Measure Costs

User Defined Measures: This tab provides you with the optional feature of defining custom measures and costing. The Itemized Cost tab on the audit form is where these measures can be automatically added to an audit. The "Available for use in" check boxes are used to specify which audits (NEAT or MHEA or both) the measure applies to. A separate category of predefined measures addressing health and safety issues is also available for editing. The VIEW combo in the bottom left of the form is used to switch the view between different categories of records. You cannot copy or delete the health and safety records but they can be edited.

This just controls the display order on forms and reports (blank = default sorting by Name in forms and SIR in reports) NUM

Setup Library

Library Name: References

Setup Library Information | Key Parameters | Fuel Costs (1) | Fuel Price Indices | Library Measures | User Defined Measures (0) | **NEAT Insulation Types**

Attic		Knee Wall		Wall			
Type	Name	Rs/Inch	Name	R-Value	Name	Value	Units
Type 1	<input type="text" value="Blown Cellulose"/>	3.75	<input type="text" value="Fiberglass Batts"/>	13	<input type="text" value="Blown Cellulose"/>	3.71	<input type="text" value="R/in"/>
Type 2	<input type="text" value="Blown Fiberglass"/>	3.09					<input type="text" value="R"/>
Type 3							<input type="text" value="R"/>
Type 4							<input type="text" value=""/>
Type 5							<input type="text" value=""/>
Type 6							<input type="text" value=""/>

Floor		Sill		Foundation Wall		
Type	Name	Rs/Inch	Name	R-Value	Name	R-Value
Type 1	<input type="text" value="Fiberglass Batts"/>	3.33	<input type="text" value="Fiberglass Batts"/>	19	<input type="text" value="Rigid Foam Board"/>	12
Type 2						
Type 3						
Type 4						
Type 5						
Type 6						

Insulation type names can be up to 30 characters in length

R's per inch for the ceiling insulation [Min 1 ,Max 10] NUM

2.3. EA-QUIP

EA-QUIP is New Jersey's Weatherization audit tool which is used on 5 or more units. This audit determines economically optimal mixes of energy-saving measures for a given building and within a chosen budget, for which it uses retrofit and cost libraries. From the library of measures, the program chooses those which are applicable to the building under consideration and ranks them by decreasing savings-to-cost ratio. This ratio is defined for each retrofit as the life cycle savings (energy savings minus future maintenance and replacement costs over the user-selected time horizon for each retrofit) divided by the installed cost of the measure.

EA-QUIP provides preformatted energy and economics reports such as: Applicable Energy Conservation Measures rated by Life-Time savings per investment, Existing conditions, Energy savings, Savings and costs analysis, and an Investment Analysis report where measures are prioritized and ranked by saving to Investment Ratio (SIR). For energy auditors and energy policy makers who are more interested in the most desirable energy-saving combination of retrofits, EA-QUIP provides a three-stage automated process: the selection of retrofits, their economic optimization, and their predictive analysis. [[Building Energy Software Tools Directory](#)]

For multi-family buildings, all EA-QUIP audits must be reviewed by State Monitor followed by a physical site assessment to confirm the work indicated on the audit is required for the multi-family project. If the project will be funded through LIHEAP WX, WAP Agency can proceed to a bid upon State Monitor review being completed. If the project will be funded through DOE Annual funds, the project must be submitted to OLIEC for forwarding to USDOE for review and approval prior to any work commencing. WAP Agency must provide the following documents for submission to USDOE:

- Short narrative describing existing building (size, no. of units, envelope, building age, mechanical systems) and proposed improvements.
- Audit – EA-QUIP
 - Online EA-QUIP- WAP Agency must provide direct access to it with a password and userID.
 - If utilizing the old disc-based EA-QUIP then WAP Agency must print out a hard copy and scan -printout **MUST INCLUDE** the comparison of modeled vs. actual energy use.
- Field assessment notes and back-up calculations (if any).
- Any other documentation that was used to define the Scope of Work for the Project.
- Scope of Work for the Project including SIR for each measure and cumulative SIR.

The screenshot shows the user interface of the Energy Audit software. At the top left is the logo for the Association for Energy Affordability. The top navigation bar includes a 'Welcome' message, a search box, and icons for Home, Reports, Edit Profile, Admin, and Logout. Below this is a secondary navigation bar with tabs for SINGLE ENTRY COMPONENTS (highlighted), MULTIPLE ENTRY COMPONENTS, RETROFIT COSTS, BUILDING MODELING, HELP, FAQ, and MANAGE USER ACCESS.

On the left side, there is a table with the following data:

Building Data Last Updated On	F	in Mar 31, 2014 16:04:41 EDT
Reports Generated On	F	in Mar 31, 2014 16:05:27 EDT

Below the table is the heading "Building List -> Single Entry Components". The main area contains several icons representing different building components: Fuel Data, General, Infiltration, Economic-Fuel, Heating System, Control and Distribution, Appliance, and Lighting.

On the right side, there is a table titled "Single Entry Components" with the following data:

Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

A red-bordered box contains the following text: "Note: For small multifamily buildings, less than 25 units where the units are individually heated, DOE has accepted the use of the NEAT audit."

The screenshot displays the 'Single Entry Components' section for 'Heating Fuel Data'. At the top, there is a navigation bar with 'Home', 'Reports', 'Edit Profile', 'Admin', and 'Logout' buttons. Below this, a 'Welcome' message is visible. The main interface includes a 'Building Data Last Updated On' and 'Reports Generated On' section, both showing '11/31, 2014 16:04:41 EDT' and '11/31, 2014 16:05:27 EDT' respectively.

The 'Building List -> Single Entry Components -> Heating Fuel Data' section features a filter for 'Fuel Units' set to 'Therms', 'State' set to 'New Jersey', and 'City' set to an empty field. A table lists fuel data entries with columns for 'Received Date (mm / dd / yyyy)', 'Quantity (Therms)', 'Bill(\$)', and 'Action'. The table contains six rows of data, each with a 'Delete' button. Below the table are buttons for 'Recalculate & Save', 'Generate Report', 'Delete All', 'CSV Import', and 'Cancel'.

To the right of the table is a 'Billing Summary' section. It includes a 'Fuel Period Analysis' table with the following data:

Fuel Period Analysis:	396 days
Total Fuel:	12,979 (Therms)
Total Fuel Bill Amount:	\$ 14,149.798
Average Fuel Cost:	\$ 1.09

Below this is a 'Yearly Usage' table:


	Actual	Normalized
Total Usage	12,944	14,158
Monthly Base Load	421	421
Heating Degree Days	4663	5115

At the bottom, there is a 'Billing Summary / Yearly Usage Edit History' table:

Created By	2013 14:37:17 EDT
Updated By	2014 16:03:52 EDT 2013 15:53:38 EDT 2013 14:29:00 EDT 2013 13:59:49 EDT 2013 13:57:13 EDT

A minimum 12 months of fuel data consumption is required. The first entry should always be zeroed out. Press [HELP](#) at the top right corner of the page for further information.

Note: check with building management to see if there are multiple utility supplied. If so, additional fuel data must be entered to provide an accurate building model.



Welcome [User Name]

[Home](#)
[Reports](#)
[Edit Profile](#)
[Admin](#)
[Logout](#)

SINGLE ENTRY COMPONENTS
MULTIPLE ENTRY COMPONENTS
RETROFIT COSTS
BUILDING MODELING
HELP
FAQ
MANAGE USER ACCESS

Building Data Last Updated On		11, 2014 16:04:41 EDT
Reports Generated On		11, 2014 16:05:27 EDT

Building List -> Single Entry Components -> General

[Previous Component](#) [Next Component](#)

Terrain	U--Urban	▼
Shielding	M--Moderate	▼
Ground Surface	T--Tar and Gravel	▼
Number Of Heated Floors (No.)	4.00	
Number Of Dwelling Units (No.)	21	
Average Heated Space Per Floor (sqft)	9078.00	
Ceiling Height (feet)	9.00	
Dwelling Mass	H--Heavy	▼
Cooling Equipment	N--None	▼
Comments	^ ▼	

History

Created By	18, 2013 14:38:38 EDT
Updated By	t21, 2013 15:33:10 EDT t21, 2013 15:33:02 EDT t21, 2013 15:12:02 EDT t21, 2013 15:10:49 EDT t21, 2013 15:00:13 EDT

Press **HELP** at the top right corner of the page for further information.

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

The screenshot shows the 'Infiltration' form in the software. At the top, there is a navigation bar with the logo 'ASSOCIATION FOR ENERGY AFFORDABILITY' and a 'Welcome' message. The main navigation menu includes 'SINGLE ENTRY COMPONENTS' (highlighted), 'MULTIPLE ENTRY COMPONENTS', 'RETROFIT COSTS', 'BUILDING MODELING', 'HELP', 'FAQ', and 'MANAGE USER ACCESS'. The 'HELP' link is highlighted in yellow.

Below the navigation bar, there is a table with the following data:

Building Data Last Updated On	I, 2014 16:04:41 EDT
Reports Generated On	I, 2014 16:05:27 EDT

A red box annotation points to the 'HELP' link in the navigation bar with the text: "Press **HELP** at the top right corner of the page for further information."

The main form is titled "Building List -> Single Entry Components -> Infiltration". It contains the following fields:

- Infiltration Measured:** A dropdown menu with the value "N--Not measured". A red arrow points to this field with the annotation: "Blower door testing is not required for 5> units."
- Mechanical Ventilation:** A dropdown menu with the value "N--None". A red arrow points to this field with the annotation: "If mechanical ventilation is present it must be entered."
- Comments:** A text area with up and down arrow icons.

Below the form are "Update" and "Cancel" buttons. To the right of the form is a table of "Single Entry Components":

Single Entry Components	
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes

Below this table is a table of "Multiple Entry Components":

Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

At the bottom of the form is a "History" section with the following data:

Created By	18, 2013 14:38:44 EDT
Updated By	18, 2013 14:38:44 EDT

The screenshot shows the 'Economic-Fuel' entry screen in the software. At the top, there is a navigation bar with 'HELP' highlighted. Below it, a table shows 'Building Data Last Updated On' and 'Reports Generated On' both dated 31, 2014. The main section is titled 'Building List -> Single Entry Components -> Economic-Fuel'. It contains a form with the following fields:

- Maximum Expenditure (\$): 144921.00
- Real Discount Rate (%): 3.00
- Master Electric Metering: N--No
- Space Heating Fuel: G--Gas
- Domestic Hot Water Fuel: G--Gas
- Actual Heating Degree Days (Degdays): 4663
- Actual Yearly Gas Use (therm): 12944.00
- Actual Base Gas Use (therm/mo): 421.00
- Gas Price (\$/therm): 1.09
- Heating Fuel Price Escalation Rate (%): 0
- Dhw Fuel Price Escalation Rate (%): 0
- Current Electricity Price (\$/kwh): 0.15
- Consider Switching Electric Rates?: N--No
- Comments: (empty text area)

At the bottom, there are 'Update' and 'Cancel' buttons, and a 'History' section showing 'Created By' and 'Updated By' with their respective dates and times.

Press **HELP** at the top right corner of the page for further information.

Enter the total maximum expenditure based on the eligible units.

DO NOT ALTER: Real Discount Rate must remain the default %.

These entry sections will automatically fill based on the information entered into the FUEL DATA screen.

DO NOT ALTER: Heating/dhw Fuel Escalation Rate must be 0 %.

Obtain pricing from utility bills for the service area the multi-dwelling is located.

ASSOCIATION FOR ENERGY AFFORDABILITY

Welcome [User Name]

Home Reports Edit Profile Admin Logout

SINGLE ENTRY COMPONENTS MULTIPLE ENTRY COMPONENTS RETROFIT COSTS BUILDING MODELING HELP FAQ MANAGE USER ACCESS

Building Data Last Updated On 31, 2014 16:04:41 EDT
 Reports Generated On 31, 2014 16:05:27 EDT

Building List -> Single Entry Components -> Heating System

Single Entry Components

Heating Equipment Type	P--Power Gas Boiler
Rated Input Capacity (mbtu/hr)	1984.00
Combustion Efficiency (%)	82.00
Measured Flue Carbon Dioxide (%)	6.50
Net Flue Gas Temperature (deg F)	469.00
Measured Flue Gas Draft (in. H20)	-2.00
Measured Flue Co (ppm)	5.00
Measured Ambient Co (ppm)	0
Barometric Damper	G--Good condition
Heating System Condition	G--Good w/clean heat transfer surfaces
Aquastat Condition	G--Good
Burner Condition	G--Good
Source Of Boiler Room Ventilation	B--Both Outside and Inside
Air Inlet Area (sqin)	2000.00

Update Cancel

History

Created By	[User Name]	8, 2013 14:41:24 EDT
Updated By	[User Name]	22, 2013 14:11:20 EDT 8, 2013 15:21:36 EDT 8, 2013 14:41:24 EDT

Lighting Yes

Multiple Entry Components

Callout 1: Press **HELP** at the top right corner of the page for further information.

Callout 2: Input Capacity found on boiler plate. Only enter the number which represents millions (i.e. 1984 as opposed to 1,984,000).
If multiple units run simultaneously, add the input mbtu/hr for a total capacity.

Callout 3: Enter heating system combustion measurements. Ensure the draft is accurate (negative/positive readings).
If multiple units run simultaneously, average out the collected measurements.

Callout 4: The audit may recommend increasing boiler room ventilation. The result will be based on entered boiler's input mbtu/hr and air inlet area in square inches.

Association for Energy Affordability

Welcome [User Name]

Home [Home Icon] [Profile Icon] [Admin Icon] [Logout Icon]

SINGLE ENTRY COMPONENTS | MULTIPLE ENTRY COMPONENTS

Building Data Last Updated On: 11, 2014 16:04:41 EDT
 Reports Generated On: 11, 2014 16:05:27 EDT

Building List -> Single Entry Components -> Control and Distribution

Previous Component | Next Component

Type Of Distribution System	W--Hot water
Total Uninsulated Heating Pipe/duct Length (ft)	0
Type Of Heating Controls	I--Indoor thermostat(s)
Condition Of Sensor/Controls	G--Good
Number Of Sensors (No.)	1
Modulating Aquastat	W--Working
Heating Day Thermostat Setting (degF)	72.00
Heating Night Setting (degF)	67.00
Percent Of Dwelling Out Of Balance (%)	0
Comments	


Update | Cancel

History

Created By	18, 2013 14:41:41 EDT
Updated By	18, 2013 14:41:41 EDT

Windows: Yes
 Doors: Yes
 Roof: Yes
 Base: Yes

Press **HELP** at the top right corner of the page for further information.



Welcome [User]
Home
Reports
Edit Profile
Admin
Logout

SINGLE ENTRY COMPONENTS
MULTIPLE ENTRY COMPONENTS
RETROFIT COSTS
BUILDING MODELING
HELP
FAQ
MANAGE USER ACCESS

Building Data Last Updated On	31, 2014 16:04:41 EDT
Reports Generated On	31, 2014 16:05:27 EDT

Building List -> Single Entry Components -> Appliance

[Previous Component](#) [Next Component](#)

Avg Daytime Occupants In Dwelling (No.)	4	
Avg Night Occupants In Dwelling (No.)	62	
Total Daily Hot Water Use (gal/day)	1364.00	←
Number Of Showers In Dwelling (No.)	24	
Percentage of Building with Low-Flow Fixtures (Showerheads and Faucet Aerators)(%)	0	
Water Heater Type	I--Gas - insulated	←
Input Rating (mbtu/hr)	40.00	
Condition of Water Heater	G--Good	▼
Measured Combustion Efficiency (%)	85.00	←
Hot Water Temperature (degF)	130.00	
Location Of Water Heater	B--Basement	▼
Total Length Of Uninsulated DhW Pipes (ft)	0	
Number of Apartments with In-Unit Laundry Dryers (No.)	0	
Stove/Oven Type	G--Gas	▼
Typical Refrigerator Type	M--Man. defrost & freezer	▼
Number Of Refrigerators to Be Replaced (No.)	15	
Average Annual Refrigerator Use of Refrigerators to be Replaced (KWh)	865.00	
Number of Refrigerators NOT to be Replaced (No.)	9	
Average Annual Refrigerator Use of Refrigerators NOT to be Replaced (KWh)	480.00	
Comments		←

Press HELP at the top right corner of the page for further information.


Estimate hot water usage, based on dwelling occupants. Daily hot water use should be between 15 to 20 gal. a day per person living in dwelling.

If the heating system provides potable hot water then enter tank-less coil; then you can consider separating making it a stand alone system.

Enter hot water efficiency measurements. If multiple units run simultaneously, average out the collected measurement.

A minimum of 10% of the total refrigerators proposed to be replaced in a multi-family dwelling must be metered with the line logger.

Note: If tenants do not pay for electricity directly and do not own the existing refrigerator, the replacement should not be considered a priority. If the landlord wants replacements AND the energy audit recommendation supports the measure, leveraging applies. Landlords must pay 50% of the cost for replacements. Any measures ranked higher must be installed before refrigerator replacements.



Welcome [redacted]

[Home](#)
[Reports](#)
[Edit Profile](#)
[Admin](#)
[Logout](#)

SINGLE ENTRY COMPONENTS
MULTIPLE ENTRY COMPONENTS
RETROFIT COSTS
BUILDING MODELING
HELP
FAQ
MANAGE USER ACCESS

Building Data Last Updated On		31, 2014 16:04:41 EDT
Reports Generated On		31, 2014 16:05:27 EDT

Building List -> Single Entry Components -> Lighting [Previous Component](#)

Total Lighting Wattage Per Unit (watts)	<input type="text" value="240"/>
Hours On Of In-unit Space Lighting (hours)	<input type="text" value="4.00"/>
Percent In-unit Wattage Reduction (%)	<input type="text" value="67.00"/>
Avg Interior Public Lighting Wattage per Floor (watts)	<input type="text" value="120.00"/>
Hours On of Interior Public Lighting (hours)	<input type="text" value="24.00"/>
Percent Interior Public Wattage Reduction (%)	<input type="text" value="0"/>
Total Wattage of Exterior Public Lighting (watts)	<input type="text" value="0"/>
Hours On of Exterior Lighting (hours)	<input type="text" value="0"/>
Percent Exterior Public Wattage Reduction (%)	<input type="text" value="0"/>
Comments	<div style="border: 1px solid gray; height: 40px; width: 100%;"></div>

History

Created By		18, 2013 14:45:01 EDT
Updated By		18, 2013 14:45:01 EDT

Press **HELP** at the top right corner of the page for further information.

Note: LED lighting is not approved by DOE.

General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

The screenshot displays the AEA Energy Affordability software interface. At the top left is the AEA logo. The top navigation bar includes a 'Welcome' message, a search box, and icons for Home, Reports, Edit Profile, Admin, and Logout. Below this is a secondary navigation bar with tabs for SINGLE ENTRY COMPONENTS, MULTIPLE ENTRY COMPONENTS (highlighted), RETROFIT COSTS, BUILDING MODELING, HELP, FAQ, and MANAGE USER ACCESS.

The main content area features a table with building data:

Building Data Last Updated On	31, 2014 16:04:41 EDT
Reports Generated On	31, 2014 16:05:27 EDT

To the right of this table is a link for [Edit Building Information](#).

Below the table is the heading **Building List -> Multiple Entry Components**. Underneath are five icons representing building components: Walls, Windows, Doors, Roof, and Base.

On the right side of the interface is a table summarizing component status:

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

The screenshot shows a web application interface for energy audits. At the top left is the logo for the Association for Energy Affordability. The top navigation bar includes a 'Welcome' message, a search box, and icons for Home, Reports, Edit Profile, Admin, and Logout. Below this is a secondary navigation bar with tabs for SINGLE ENTRY COMPONENTS, MULTIPLE ENTRY COMPONENTS (which is highlighted), RETROFIT COSTS, BUILDING MODELING, HELP, FAQ, and MANAGE USER ACCESS.

The main content area displays building information:

Building Data Last Updated On	r 31, 2014 16:04:41 EDT
Reports Generated On	r 31, 2014 16:05:27 EDT

 An 'Edit Building Information' link is located to the right of this table.

The central section is titled 'Building List -> Multiple Entry Components -> Walls'. It includes a table with the following data:

Wall Name **	Action
Primary	Delete

 Above the table are links for 'Back' and 'Add'. Below the table is a note: '** At least one Wall Name must be 'Primary''.

To the right of the main table is a 'Next Component' link and a summary table:

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes



SINGLE ENTRY COMPONENTS **MULTIPLE ENTRY COMPONENTS** RETROFIT COSTS BUILDING MODELING [HELP](#) FAQ MANAGE USER ACCESS

Building Data Last Updated On	<input type="text"/>	EDT
Reports Generated On	<input type="text"/>	EDT

Press **HELP** at the top right corner of the page for further information.

Building List -> Multiple Entry Components -> Walls -> Edit

Name Of Wall	<input type="text" value="Primary"/>
Wall Orientation	<input type="text" value="M--Multiple"/>
Azimuth Of North Face (degrees)	<input type="text" value="0"/>
Wall Type	<input brick"="" type="text" value="S--8"/>
Wall Insulation	<input type="text" value="F--Fiberglass batts"/>
Insulation Thickness (in)	<input type="text" value="4.00"/>
Insulatable Wall Thickness (in)	<input type="text" value="0"/>
North-facing Exterior Area (sqft)	<input type="text" value="3672.00"/>
East-facing Exterior Area (sqft)	<input type="text" value="3204.00"/>
South-facing Exterior Area (sqft)	<input type="text" value="3672.00"/>
West-facing Exterior Area (sqft)	<input type="text" value="3204.00"/>
Area Of Windows In Wall (sqft)	<input type="text" value="1290.00"/>
Area Of Doors In Wall (sqft)	<input type="text" value="120.00"/>
Air Leakage Through Wall	<input type="text" value="S--Small"/>
Area Of Any Hole In Wall (sqin)	<input type="text" value="0"/>
Comments	<input type="text"/>

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

This entry is critical for window orientation. Estimate how many degrees from true north.

As a reminder in this section, the window and door measurements are entered in square feet not inches.

Association for Energy Affordability

Welcome [redacted]

Home Reports Edit Profile Admin Logout

SINGLE ENTRY COMPONENTS **MULTIPLE ENTRY COMPONENTS** RETROFIT COSTS BUILDING MODELING HELP FAQ MANAGE USER ACCESS

Building Data Last Updated On [redacted] :31, 2014 16:04:41 EDT

Reports Generated On [redacted] :31, 2014 16:05:27 EDT

[Edit Building Information](#)

Building List -> Multiple Entry Components -> Windows [Previous Component](#) [Next Component](#)

[Back](#) [Add](#)

Window Name **	Action
Primary	Delete
Good windows	Delete

** At least one Window Name must be 'Primary'

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes



Welcome [User Name]

Home Reports Edit Profile Admin Logout

SINGLE ENTRY COMPONENTS **MULTIPLE ENTRY COMPONENTS** RETROFIT COSTS BUILDING MODELING **HELP** FAQ MANAGE USER ACCESS

Press HELP at the top right corner of the page for further information.

Building Data Last Updated On	
Reports Generated On	

Building List -> Multiple Entry Components -> Windows -> Edit


Name Of Windows	Primary
Window Orientation	M--Multiple
Window Type	D--Double hung
Glazing	S--Single pane
Curtains Blinds	S--Shades or Blinds
Average Sash Fit	L--Loose - poor/no weatherstrip
Physical Condition Of Frame	P--Poor
Cracks Between Frame Wall	L--Large
Area Of Any Holes In Windows (sqin)	0
Area Per Window (sqin)	1952.00
Number Of: North Windows (No.)	41
" Number Of: East Windows" (No.)	28
" Number Of: South Windows" (No.)	41
" Number Of: West Windows" (No.)	32
" December Solar Exposure - East" (%)	30.00
" December Solar Exposure - South" (%)	30.00
" December Solar Exposure - West" (%)	30.00
Replacement Window U-Value	0.50
Expected window air leakage reduction due to replacement	L--Large
Justification for Predicting Large or Very Large Expected Energy Savings from Window Replacement	Windows are loose, off track, strings are broken, wooden track is rotted out. It is not cost effective to do any repairs.

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Roof	Yes
Base	Yes

As a reminder in this section, the window area is entered in as square inches.

Exposures need to be addressed. Press HELP for additional information.

Enter the U-Value of the Replacement Window.



Home Reports Edit Profile Admin Logout

SINGLE ENTRY COMPONENTS
MULTIPLE ENTRY COMPONENTS
RETROFIT COSTS
BUILDING MODELING
HELP
FAQ
MANAGE USER ACCESS

Building Data Last Updated On	4:41 EDT
Reports Generated On	:35 EDT

Press **HELP** at the top right corner of the page for further information.

Building List -> Multiple Entry Components -> Windows -> Edit

Name Of Windows	<input type="text" value="Good windows"/>
Window Orientation	<input type="text" value="M--Multiple"/>
Window Type	<input type="text" value="D--Double hung"/>
Glazing	<input type="text" value="D--Double pane"/>
Curtains Blinds	<input type="text" value="S--Shades or Blinds"/>
Average Sash Fit	<input type="text" value="T--Tight"/>
Physical Condition Of Frame	<input type="text" value="G--Good"/>
Cracks Between Frame Wall	<input type="text" value="N--None"/>
Area Of Any Holes In Windows (sqin)	<input type="text" value="0"/>
Area Per Window (sqin)	<input type="text" value="1952.00"/>
Number Of: North Windows (No.)	<input type="text" value="4"/>
" Number Of: East Windows" (No.)	<input type="text" value="6"/>
" Number Of: South Windows" (No.)	<input type="text" value="5"/>
" Number Of: West Windows" (No.)	<input type="text" value="6"/>
Replacement Window U-Value	<input type="text" value="0.40"/>
Expected window air leakage reduction due to replacement	<input type="text" value="S--Small"/>
Comments	<div style="border: 1px solid gray; height: 40px; width: 100%;"></div>

Note: If there are A/C Sleeves; select add component for a new window entry.

Single Entry Components	
Fuel Data	Yes
General	Yes
	Yes
	Yes
	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

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Welcome []

Home Reports Edit Profile Admin Logout

SINGLE ENTRY COMPONENTS MULTIPLE ENTRY COMPONENTS RETROFIT COSTS BUILDING MODELING HELP FAQ MANAGE USER ACCESS

Building Data Last Updated On :31, 2014 16:04:41 EDT

Reports Generated On :31, 2014 16:05:27 EDT

[Edit Building Information](#)

Building List -> Multiple Entry Components -> Doors [Previous Component](#) [Next Component](#)

Door Name **	Action
Entrance	Delete
Back	Delete

[Back](#) [Add](#)

** At least one Door Name must be 'Entrance'

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes



[SINGLE ENTRY COMPONENTS](#) **[MULTIPLE ENTRY COMPONENTS](#)** [RETROFIT COSTS](#) [BUILDING MODELING](#) [HELP](#) [FAQ](#) [MANAGE USER ACCE](#)

Building Data Last Updated On	
Reports Generated On	

Press **HELP** at the top right corner of the page for further information.

Building List -> Multiple Entry Components -> Doors -> Edit

Name Of Doors	Entrance
Door Type	P--Plain (Hinged) ▼
Door Material	G--Glass w/Metal or Wood Frame ▼
Storm Doors Or Vestibule	N--None ▼
Door Fit	T--Tight ▼
Number Of Doors (No.)	1
Area Per Door (sqft)	26.00
Approximate Glass Area (%)	50.00
Comments	

History

Created By	
Updated By	

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes



[SINGLE ENTRY COMPONENTS](#) **[MULTIPLE ENTRY COMPONENTS](#)** [RETROFIT COSTS](#) [BUILDING MODELING](#) [HELP](#) [FAQ](#) [MANAGE USER ACCESS](#)

Building Data Last Updated On	<input type="text"/>
Reports Generated On	<input type="text"/>

Press **HELP** at the top right corner of the page for further information.

Building List -> Multiple Entry Components -> Doors -> Edit

Name Of Doors	<input type="text" value="Back"/>
Door Type	<input type="text" value="P--Plain (Hinged)"/>
Door Material	<input type="text" value="M--Hollow Metal"/>
Storm Doors Or Vestibule	<input type="text" value="N--None"/>
Door Fit	<input type="text" value="T--Tight"/>
Number Of Doors (No.)	<input type="text" value="4"/>
Area Per Door (sqft)	<input type="text" value="24.00"/>
Approximate Glass Area (%)	<input type="text" value="0"/>
Comments	<input type="text"/>

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

History

Created By	<input type="text"/>
Updated By	<input type="text"/>

The screenshot displays the 'Energy Audits' software interface. At the top left is the logo for the 'ASSOCIATION FOR ENERGY AFFORDABILITY'. The top navigation bar includes a 'Welcome' message, a search box, and icons for Home, Reports, Edit Profile, Admin, and Logout. Below this is a secondary navigation bar with tabs for SINGLE ENTRY COMPONENTS, MULTIPLE ENTRY COMPONENTS (highlighted), RETROFIT COSTS, BUILDING MODELING, HELP, FAQ, and MANAGE USER ACCESS.

The main content area shows building data: 'Building Data Last Updated On' and 'Reports Generated On', both dated 31, 2014. A link for 'Edit Building Information' is visible. The current view is 'Building List -> Multiple Entry Components -> Roof', with navigation links for 'Previous Component' and 'Next Component'. A table lists the roof components:

Roof Name **	Action
Primary	Delete

A note below the table states: '** At least one Roof Name must be 'Primary''.

On the right side, there are two summary tables:

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes

Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

ASSOCIATION FOR ENERGY AFFORDABILITY

Home Reports Edit Profile Admin Logout

SINGLE ENTRY COMPONENTS **MULTIPLE ENTRY COMPONENTS** RETROFIT COSTS BUILDING MODELING HELP FAQ MANAGE USER ACCESS

Building Data Last Updated On	
Reports Generated On	

Press **HELP** at the top right corner of the page for further information.

Building List -> Multiple Entry Components -> Roof -> Edit

Name For Attic/roof	Primary
Roof Type	F--Flat roof
Insulation Type	F--Fiberglass batts
Insulation Thickness (in)	6.00
Insulatable Air Space (in)	0
Roof Area (sqft)	8500.00
No. Of Rooftop Windows (No.)	0
No. Of Rooftop Doors (No.)	1
No. Of Penetrations (No.)	3
Water Leakage Through Roof	T--Tightly sealed
Roof Top Material	A--Asphalt Shingles or Sheeting
Roof Color	D--Dark
Comments	

The sum of the roof area (Sq. ft.) should be about equal to the Average Heated Space per floor (Sq. ft.) Add comment if the structure has an unusual floor plan.

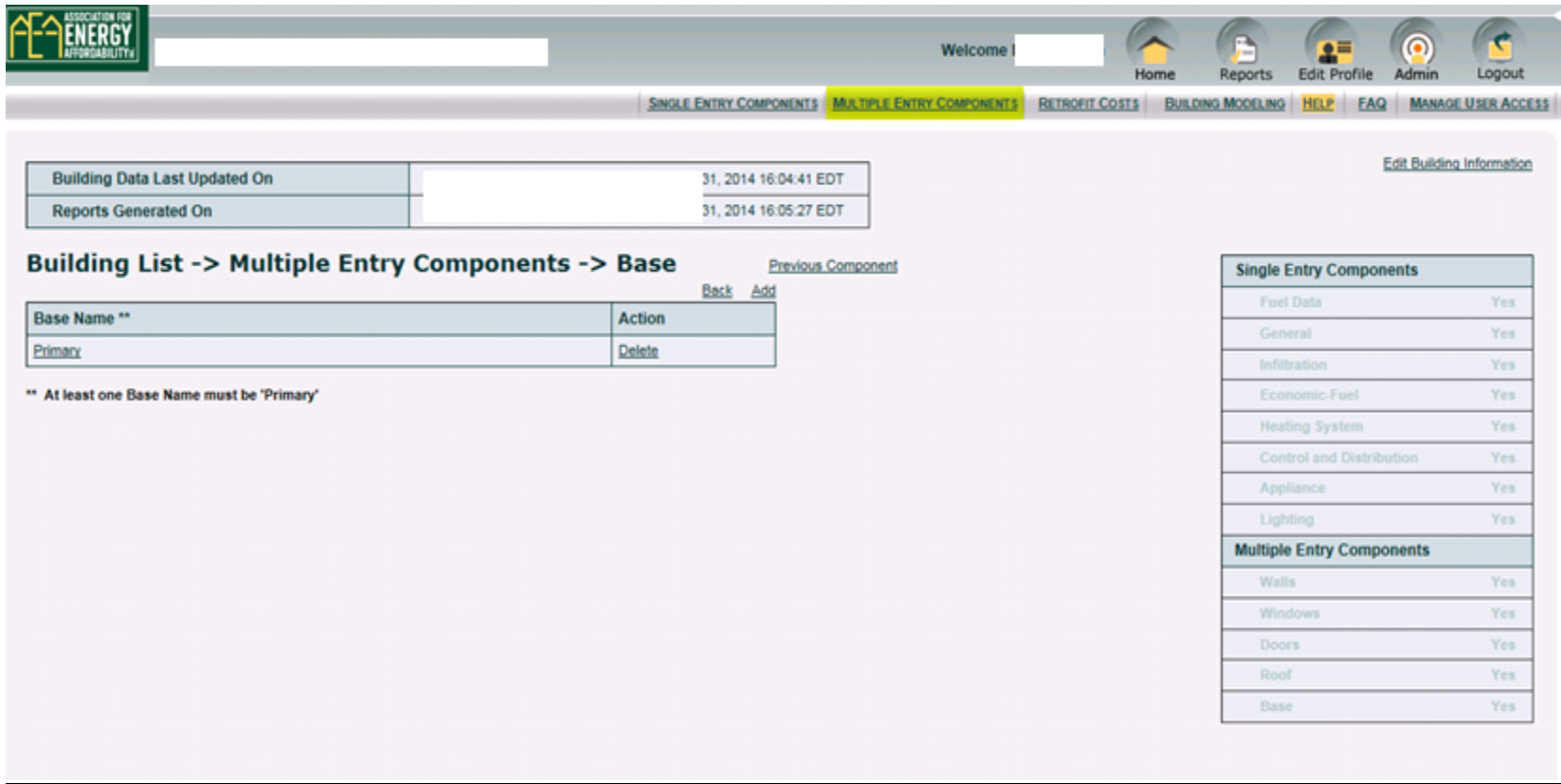
Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes

Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

Update Cancel

History

Created By	
Updated By	



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Welcome | [User Name]

Home Reports Edit Profile Admin Logout

SINGLE ENTRY COMPONENTS MULTIPLE ENTRY COMPONENTS RETROFIT COSTS BUILDING MODELING HELP FAQ MANAGE USER ACCESS

Building Data Last Updated On	31, 2014 16:04:41 EDT
Reports Generated On	31, 2014 16:05:27 EDT

[Edit Building Information](#)

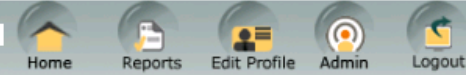
Building List -> Multiple Entry Components -> Base [Previous Component](#)

[Back](#) [Add](#)

Base Name **	Action
Primary	Delete

** At least one Base Name must be 'Primary'

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes



SINGLE ENTRY COMPONENTS **MULTIPLE ENTRY COMPONENTS** RETROFIT COSTS BUILDING MODELING **HELP** FAQ MANAGE USER ACC

Building Data Last Updated On	<input type="text"/>
Reports Generated On	<input type="text"/>

Press **HELP** at the top right corner of the page for further information.

Building List -> Multiple Entry Components -> Base -> Edit

Base Name	<input type="text" value="Primary"/>
Base Type	<input type="text" value="B-Basement"/>
Base Insulation	<input type="text" value="N-No insulation"/>
Floor Area (sqft)	<input type="text" value="9078.00"/>
No. Of Floor Penetrations (No.)	<input type="text" value="12"/>
Base Wall Insulation	<input type="text" value="N-No insulation"/>
Above-grade Height (ft)	<input type="text" value="3.00"/>
Exterior Perimeter (ft)	<input type="text" value="382.00"/>
No. Of Windows (No.)	<input type="text" value="7"/>
No. Of Doors (No.)	<input type="text" value="2"/>
No. Of Leaky Penetrations (No.)	<input type="text" value="6"/>
Air Leakage Through Base	<input type="text" value="M-Moderate amount of leakage"/>
Area Of Windows To Be Sealed (sqft)	<input type="text" value="0"/>
R-value Of Window Seal (F-sqft/Btuh)	<input type="text" value="5.00"/>
Comments	<input type="text"/>

The sum of the floor area (Sq. ft.) should be about equal to the Average Heated Space per floor (Sq. ft.) Add comment if the structure has an unusual floor plan.

The foundation perimeter should be consistent with the floor area.

Single Entry Components	
Fuel Data	Yes
General	Yes
Infiltration	Yes

Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

History

Created By	<input type="text"/>
Updated By	<input type="text"/>

La Casa De Don Pedro - NJ - New Community Sussex

Welcome David Padilla

Home Reports Edit Profile Admin Logout

SINGLE ENTRY COMPONENTS

MULTIPLE ENTRY COMPONENTS

RETROFIT COSTS

BUILDING MODELING

HELP

FAQ

MANAGE USER ACCESS

Building Data Last Updated On

Reports Generated On

SAMPLE Section of Retrofit Costs

[Edit Building Information](#)

Building List -> Retrofit Costs

Weatherization agencies must update fixed and/or per unit retrofit cost.

DO NOT ALTER; Service Life of measure must remain as the default setting.

Description	Existing Conditions	Units	Fixed Cost (\$)	Cost Per Unit (\$) **	Service Life of Measure
WEATHERSTRIP Windows	loose fit	each	0.00	50.00	13
WEATHERSTRIP Windows	average fit	each	0.00	50.00	13
STORM WINDOW (exterior)		sqft	0.00	10.00	20
REPLACE w/DbtThermal Pane	wood/alum frame	each	0.00	300.00	20
SEAL&INSULATE A/C Sleeve		sqft	0.00	4.00	13
REPAIR DbtThermal Glazing		sqft	100.00	1.30	20
WTHSTRIP Windows/SEAL frames	loose fit	each	0.00	50.00	13
WTHSTRIP Windows/SEAL frames	average fit	each	0.00	50.00	13

** Double Click on the Cost Per Unit field to specify material cost and labor cost.

Save CSV Import CSV Export

Single Entry Components

Fuel Data	Yes
General	Yes
Infiltration	Yes
Economic-Fuel	Yes
Heating System	Yes
Control and Distribution	Yes
Appliance	Yes
Lighting	Yes
Multiple Entry Components	
Walls	Yes
Windows	Yes
Doors	Yes
Roof	Yes
Base	Yes

ASSOCIATION FOR ENERGY AFFORDABILITY

Welcome [redacted]

Home Reports Edit Profile Admin Logout

SINGLE ENTRY COMPONENTS MULTIPLE ENTRY COMPONENTS RETROFIT COSTS BUILDING MODELING HELP FAQ MANAGE USER ACCESS

Building Data Last Updated On	[redacted]	31, 2014 16:04:41 EDT
Reports Generated On	[redacted]	25, 2014 14:27:17 EDT

[Edit Building Information](#)

Building List -> Reports

Reports
Fuel Data
Building Information
Building Data
Building Data Comments
Energy Analysis of Existing Conditions
Energy Savings Measures
Savings And Costs Analysis
Investment Analysis
Building Modeling
Scope of Work
WAP Scope of Work
Retrofit Cost
Auto Check Report
Print / Export to Word
Post-Install Calculated Usage



Building Modeling



Building Address:

Building Modeling report and Fuel Usage Chart must be submitted to the Office of Low Income Energy Conservation for review and approval by the U.S. Department of Energy.

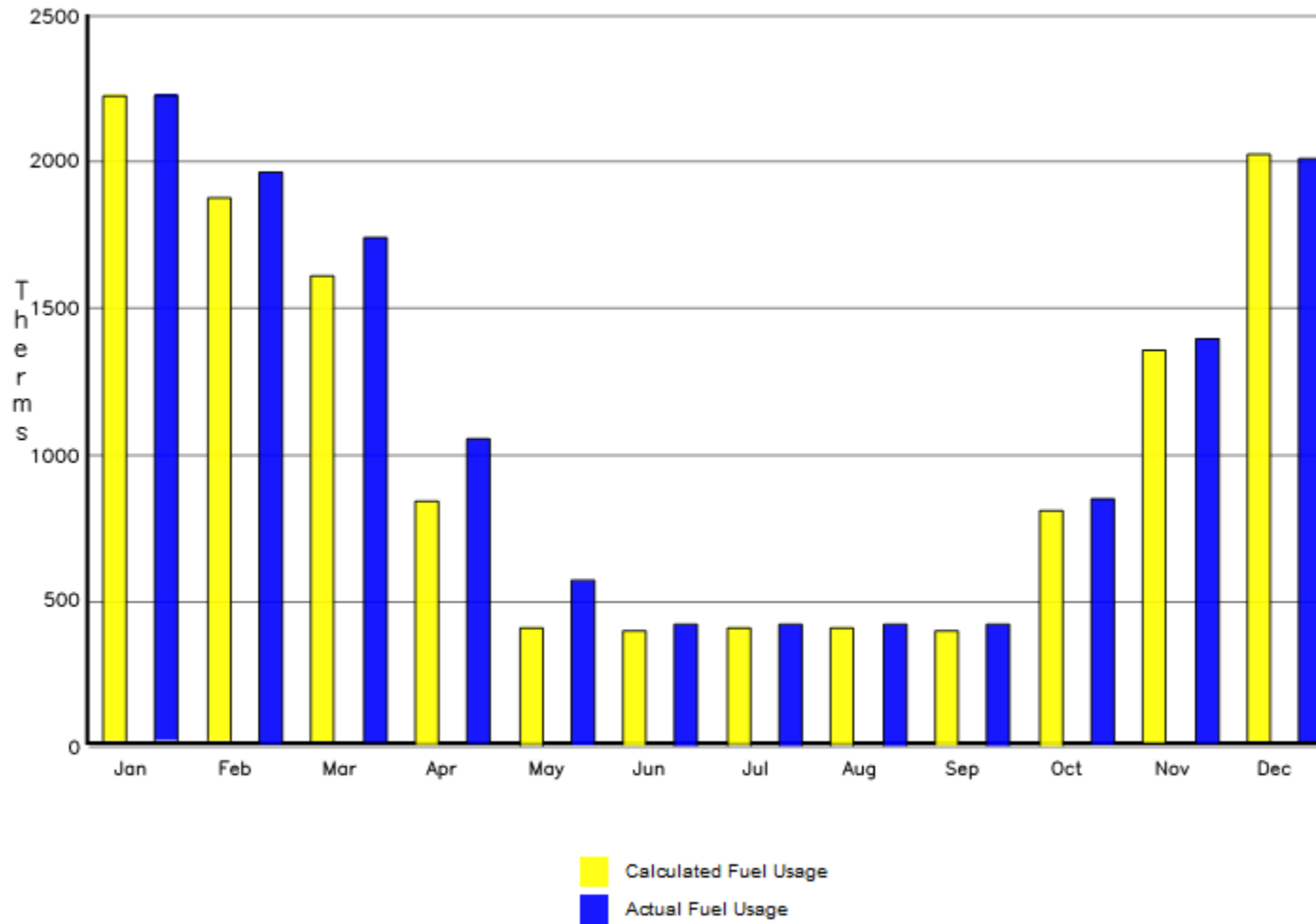
Auditor

Month	Calculated Fuel Use	Actual Fuel Use	DayTime Heat On-Time	NightTime Heat On-Time	Total Heating Load	Solar Gain	Infiltration	NH Electric **
	Therms	Therms	%	%	MMBtu	MMBtu	ac/hr	MWh
January	2,232.00	2,234.00	18.50	8.90	148.00	6.00	0.28	2.5
February	1,874.00	1,970.00	17.30	8.00	120.00	10.00	0.28	2.3
March	1,610.00	1,743.00	13.80	4.90	93.00	19.00	0.27	2.5
April	840.00	1,053.00	7.50	0.00	34.00	25.00	0.21	2.4
May	409.00	569.00	0.00	0.00	-9.00	34.00	0.19	2.5
June	396.00	421.00	0.00	0.00	-33.00	34.00	0.14	2.4
July	409.00	421.00	0.00	0.00	-41.00	33.00	0.14	2.5
August	409.00	421.00	0.00	0.00	-30.00	26.00	0.12	2.5
September	396.00	421.00	0.00	0.00	-9.00	19.00	0.14	2.4
October	610.00	847.00	6.60	0.00	30.00	13.00	0.18	2.5
November	1,355.00	1,400.00	12.90	2.50	73.00	7.00	0.22	2.4
December	2,024.00	2,010.00	17.40	7.10	128.00	6.00	0.28	2.5
Sum	12,764.00	13,510.00			502.00	232.00		29.4
Average	1,063.67	1,125.83	7.83	2.62	41.00	19.33	0.21	2.45

(**) NH Electric (Non-Heating Electric Use): includes EAEM (EA-Quip Applicable Electric Measures), cooling use and domestic use of electric.

See below fuel usage chart. Calculated and actual fuel usage should be about equal, if the audit was done properly.

Display Chart



Back



Building Address:

Fuel Data report must be submitted to the Office of Low Income Energy Conservation for review and approval by the U.S. Department of Energy.

Auditor:

State: New Jersey

City:

Fuel Units: Therms

Heating Reference Temperature: 65 DegF

Billing Summary

Fuel Period Analysis:	396 Days
Total Fuel:	12,979.352 Therms
Total Fuel Bill Amount:	\$14,149.80
Average Fuel Cost:	\$1.09

Yearly Usage

	Actual	Normalized
Total Usage:	12,944	14,158
Monthly Base:	421	421
Heating Degree Days (HDD):	4,663	5,115

Date	Quantity (Therms)	Bill Amount (\$)
04/22/2012	0.0	0
05/22/2012	667.232	813.25
06/22/2012	411.779	506.20
07/23/2012	429.411	529.20
08/21/2012	415.583	512.67
09/20/2012	566.783	648.89
10/19/2012	878.26	945.04
11/19/2012	1280.525	1294.24
12/20/2012	1378.293	1600.80
01/23/2013	1645.07	1814.08
02/20/2013	1501.24	1568.23
03/22/2013	1906.56	1977.23
04/23/2013	1150.28	1152.62
05/23/2013	748.336	789.35



Building Information



Building Address:

Building Information input report must be submitted to the Office of Low Income Energy Conservation for review and approval by the U.S. Department of Energy.

Auditor

Auditor
Phone
Company
Reviewer
Audit Date

Owner

Owner
Phone
Fax

Superintendent

Superintendent
Phone
Other Contact

Agency

Agency
Contact
Phone



Building Address:

Building Data input report must be submitted to the Office of Low Income Energy Conservation for review and approval by the U.S. Department of Energy.

Auditor

GENERAL

Terrain	U--Urban
Shielding	M--Moderate
Ground Surface	T--Tar and Gravel
Number Of Heated Floors (No.)	4.00
Number Of Dwelling Units (No.)	21
Average Heated Space Per Floor (sqft)	9078.00
Ceiling Height (feet)	9.00
Dwelling Mass	H--Heavy
Cooling Equipment	N--None

INFILTRATION

Infiltration Measured	N--Not measured
Mechanical Ventilation	N--None
Cost of Ventilation Reduction (\$)	10000

ECONOMIC S&FUEL

Maximum Expenditure (\$)	144921.00
Real Discount Rate (%)	3.00
Master Electric Metering	N--No
Space Heating Fuel	G--Gas
Domestic Hot Water Fuel	G--Gas
Actual Heating Degree Days (Degdays)	4663
Actual Yearly Gas Use (therm)	12944.00
Actual Base Gas Use (therm/mo)	421.00
Gas Price (\$/therm)	1.09
Heating Fuel Price Escalation Rate (%)	0
Dhw Fuel Price Escalation Rate (%)	0
Current Electricity Price (\$/kwh)	0.15
Consider Switching Electric Rates?	N--No

HEAT-SYSTEM

Heating Equipment Type	P--Power Gas Boiler
Rated Input Capacity (mbtu/hr)	1984.00
Combustion Efficiency (%)	82.00
Measured Flue Carbon Dioxide (%)	6.50
Net Flue Gas Temperature (deg F)	469.00
Measured Flue Gas Draft (in. H2O)	-2.00
Measured Flue Co (ppm)	5.00
Measured Ambient Co (ppm)	0
Barometric Damper	G--Good condition
Heating System Condition	G--Good w/clean heat transfer surfaces
Aquastat Condition	G--Good



Energy Analysis Of Existing Conditions



Building Address:

Auditor:

Seasons

Energy Analysis report must be submitted to the Office of Low Income Energy Conservation for review and approval by the U.S. Department of Energy.

The HEATING season is from October through May. The COOLING season is from June through September.

Physical

Total Living Space (sqft):	36312.00		Heating	Cooling
Number of Apartments:	21	Season Infiltration (cfm):	1341.20	802.45
Dwelling Volume (cuft):	326808.0	Air Exchange Rate (ach):	0.25	0.15

(BTU/Hr/degF)	Overall	Roof	Wall	Win & Doors	Base
Conduction	4078.46	388.24	766.56	2359.84	563.79
Infiltration	826.76	265.83	99.13	423.00	38.80
Total	4905.22	654.07	865.71	2782.84	602.59

(sqft)	North	East	South	West	Horizontal
Wtr Solar Aperture	331.71	252.76	337.55	279.17	86.76
Smr Solar Aperture	331.71	252.76	337.55	279.17	86.76

System & Economics

	Heating	Cooling	Water Heater	Electric
Day/Night Temp (degF)	72/67.0	78/60	130	-n/a-
Real Fuel Escalation(%)	0.00	0.00	0.00	0.00



Energy Savings Measures



Based On User Selected Retrofits

Building Address:

Auditor

Audit Date:

Original Operating Cost:

\$17,210.81 /yr

Savings In Operating Cost:

\$5,501.13 /yr

	Heating	Cooling	Water Heater	EAEM (*)
Original Building (MMBtu/yr)	794.83	0.00	374.50	101.63
Retrofitted Building(MMBtu/yr)	478.16	0.00	353.39	60.22
Energy Savings	39.84%	0.00%	5.64%	40.75%

(*) EAEM (EA-Quip Applicable Electric Measures): lighting and refrigerators eligible for replacement, range and dryers if electric.

Description	Location	Heating (%)	Cooling (%)	Water Heater (%)	Other Electric (%)
REPLACE w/LowE argon-filled Thermal Pane	Primary (Windows)	39.63	-	-	-
WTHSTRIP Windows/SEAL frames	Primary (Windows)	3.49	-	-	-
Replace apartment lighting	Lighting	-1.33	-	-	16.56
Install 386 kwh/yr REFRIGERATOR	Appliance	-1.95	-	-	24.13
LO-FLO showers & restrictors	Appliance	-	-	5.64	-



Energy Savings Measures



Based On System Defined Retrofits

Building Address:

Auditor:

Audit Date:

Original Operating Cost: \$17,210.81 /yr **Savings In Operating Cost:** \$5,501.13 /yr

	Heating	Cooling	Water Heater	EAEM (*)
Original Building (MMBtu/yr)	794.83	0.00	374.50	101.63
Retrofitted Building(MMBtu/yr)	478.16	0.00	353.39	60.22
Energy Savings	39.84%	0.00%	5.64%	40.75%

(*) EAEM (EA-Quip Applicable Electric Measures): lighting and refrigerators eligible for replacement, range and dryers if electric.

Description	Location	Heating (%)	Cooling (%)	Water Heater (%)	Other Electric (%)
Replace apartment lighting	Lighting	-1.33	-	-	16.56
LO-FLO showers & restrictors	Appliance	-	-	5.64	-
Install 388 kwh/yr REFRIGERATOR	Appliance	-1.95	-	-	24.13
REPLACE w/LowE argon-filled Thermal Pane	Primary (Windows)	39.63	-	-	-
WTHSTRIP Windows/SEAL frames	Primary (Windows)	3.49	-	-	-



Savings And Costs Analysis



Based On User Selected Retrofits

Building Address:

Auditor:

Audit Date:

Investment Cost:	\$54,773.90	Investment Limit:	\$144,921.00
Original Operating Cost:	\$17,210.81 /yr	Savings In Operating Cost:	\$5,498.56 /yr

	Energy Factor	EAEM + Cooling (*)
Original Building	6.91 BTU/sqft/HDD	29,776.04 kWh/yr
Retrofitted Building	4.91 BTU/sqft/HDD	17,643.78 kWh/yr
% Savings	28.89 %	40.75 %

*) EAEM(EA-Quip Applicable Electric Measures): lighting and refrigerators eligible for replacement, range and dryers if electric.

Description	Location	First Year savings (\$)	Initial Cost (\$)	Simple Payback (yrs)	Cumulative Cost (\$)
REPLACE w/LowE argon-filled Thermal Pane	Primary (Windows)	3433.27	39400.74	11.5 yr	39400.74
WTHSTRIP Windows/SEAL frames	Primary (Windows)	302.71	7100.00	23.5 yr	48500.74
Replace apartment lighting	Lighting	623.78	105.00	0.2 yr	48605.74
Install 386 kwh/yr REFRIGERATOR	Appliance	908.64	8100.00	8.9 yr	54705.74
LO-FLO showers & restrictors	Appliance	230.16	68.16	0.3 yr	54773.90



Savings And Costs Analysis



Based On System Defined Retrofits

Building Address:

Auditor:

Savings and Costs Analysis (System Defined Retrofit) report must be submitted to the Office of Low Income Energy Conservation for review and approval by the U.S. Department of Energy.

Investment Cost:	\$54,773.90	Investment Limit:	\$144,921.00
Original Operating Cost:	\$17,210.81 /yr	Savings In Operating Cost:	\$5,498.56 /yr

	Energy Factor	EAEM + Cooling (*)
Original Building	6.91 BTU/sqft/HDD	29,776.04 kWh/yr
Retrofitted Building	4.91 BTU/sqft/HDD	17,643.78 kWh/yr
% Savings	28.89 %	40.75 %

(*) EAEM(EA-Quip Applicable Electric Measures): lighting and refrigerators eligible for replacement, range and dryers if electric.

Description	Location	First Year savings (\$)	Initial Cost (\$)	Simple Payback (yrs)	Cumulative Cost (\$)
Replace apartment lighting	Lighting	623.78	105.00	0.2 yr	105.00
LO-FLO showers & restrictors	Appliance	230.16	68.16	0.3 yr	173.16
Install 386 kwh/yr REFRIGERATOR	Appliance	908.64	8100.00	8.9 yr	8273.16
REPLACE w/LowE argon-filled Thermal Pane	Primary (Windows)	3433.27	39400.74	11.5 yr	47673.90
WTHSTRIP Windows/SEAL frames	Primary (Windows)	302.71	7100.00	23.5 yr	54773.90



Investment Analysis



Based On User Selected Retrofits

Building Address:

Auditor:

Audit Date:

Initial Investment: \$54,773.90 Investment Limit: \$144,921.00
 Real Discount Rate: 3.00 %

	Heating	Cooling	Water Heater	Other Electric
Type of equipment	P--Power Gas Boiler	N--None	I--Gas - insulated	
Fuel prices (\$/MMBtu)	10.90	43.94	10.90	43.94
Real Fuel Escalation (%)	0.00 %	0.00 %	0.00 %	0.00 %

Description	Location	Discounted Payback	Interest Rate of Return	S.I.R.
Replace apartment lighting	Lighting	0.2 yr	594.08 %	70.9
LO-FLO showers & restrictors	Appliance	0.3 yr	337.68 %	40.3
Install 386 kwh/yr REFRIGERATOR	Appliance	10.5 yr	9.06 %	1.6
REPLACE w/LowE argon-filled Thermal Pane	Primary (Windows)	14.3 yr	5.99 %	1.3
WTHSTRIP Windows/SEAL frames	Primary (Windows)	41.1 yr	-7.53 %	0.5



Investment Analysis



Based On System Defined Retrofits

Building Address:

Auditor:

Initial Investment: \$54,773.90 Investment Limit: \$144,921.00
 Real Discount Rate: 3.00 %

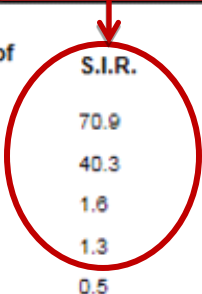
Investment Analysis (System Defined Retrofits) report must be submitted to the Office of Low Income Energy Conservation for review and approval by the U.S. Department of Energy.

	Heating	Cooling	Water
Type of equipment	P--Power Gas Boiler	N--None	I--Gas
Fuel prices (\$/MMBtu)	10.90	43.94	10.90
Real Fuel Escalation (%)	0.00 %	0.00 %	0.00 %

Only the measures with an S.I.R of 1.0% or greater are permitted to be part of the work scope.

 Unless, it is considered a health and safety measure; i.e. increasing mechanical ventilation.

Description	Location	Discounted Payback	Interest Rate of Return	S.I.R.
Replace apartment lighting	Lighting	0.2 yr	594.08 %	70.9
LO-FLO showers & restrictors	Appliance	0.3 yr	337.68 %	40.3
Install 386 kwh/yr REFRIGERATOR	Appliance	10.5 yr	9.06 %	1.6
REPLACE w/LowE argon-filled Thermal Pane	Primary (Windows)	14.3 yr	5.99 %	1.3
WTHSTRIP Windows/SEAL frames	Primary (Windows)	41.1 yr	-7.53 %	0.5





Building Address:

Retrofit Costs report must be submitted to the Office of Low Income Energy Conservation for review and approval by the U.S. Department of Energy.

Auditor:

GENERAL

Description	Existing Conditions	Units	Fixed Cost	Cost Per Unit	Service Life of Measure
Raise ambient cooling Temp 3 Deg F		each	10000.00	0.00	10
Raise ambient cooling Temp 5 Deg F		each	10000.00	0.00	10
Install 5 F Cooling night setback		each	1000.00	0.00	10
Install 10 F Cooling night setback		each	1000.00	0.00	10
Upgrade room air conditioners		each	0.00	360.00	13

INFILTRATION

Description	Existing Conditions	Units	Fixed Cost	Cost Per Unit	Service Life of Measure
SEAL house (Blower Door)		each	500.00	0.00	13

ECONOMIC-FUEL

Description	Existing Conditions	Units	Fixed Cost	Cost Per Unit	Service Life of Measure
SWITCH electric rates		each	0.00	0.00	0

HEATING SYSTEM

Description	Existing Conditions	Units	Fixed Cost	Cost Per Unit	Service Life of Measure
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Building Data Last Updated On: 31, 2014 16:04:41 EDT
 Reports Generated On: 25, 2014 14:35:43 EDT

Building List -> Reports -> Auto Check Report

Parameters	Value	Valid Range	Status	Comments
Floor area per apartment (sqft)	1457.14	400.0 < Value < 1250.0	Out Of Range	
Real Discount rate	3.0%	0.0 < Value < 4.0	OK	
Heating degree days	4663.0	4092 < Value < 6138	OK	
Heating fuel price escalation rate	0.0%	< 0.0	OK	
DHW fuel price escalation rate	0.0%	< 0.0	OK	
Electricity price escalation rate	N/A	< 0.0	N/A	
#2 oil cost	N/A	1.5 < Value < 4.5	N/A	

Comments

Buttons: Save, Cancel, Generate Report

Callout 1: Auto Check Report must be submitted to the Office of Low Income Energy Conservation for review and approval by the U.S. Department of Energy.

Callout 2: Auto Check Report- If parameter status is out of range; ensure the value entered in to the specific parameter is correct. If it is, a comment must be added justifying the reason.



Post-Install Calculated Usage



Building Address:

Post-Install Calculated Usage report must be submitted to the Office of Low Income Energy Conservation for review and approval by the U.S. Department of Energy.

Auditor:

Month	Post-Install Calculated Fuel Usage Therms	Pre-Install Actual Fuel Usage Therms	DayTime Heat On-Time %	NightTime Heat On-Time %	Total Heating Load MMBtu	Solar Gain MMBtu	Infiltration ac/hr	NH Electric MWh
January	1,524.00	2,234.00	13.90	3.70	88.00	6.00	0.17	1.5
February	1,287.00	1,970.00	13.10	3.10	72.00	10.00	0.16	1.4
March	1,075.00	1,743.00	10.60	0.00	54.00	19.00	0.16	1.5
April	625.00	1,053.00	4.40	0.00	17.00	25.00	0.12	1.4
May	391.00	589.00	0.00	0.00	-9.00	34.00	0.11	1.5
June	379.00	421.00	0.00	0.00	-27.00	34.00	0.08	1.4
July	391.00	421.00	0.00	0.00	-33.00	33.00	0.08	1.5
August	391.00	421.00	0.00	0.00	-24.00	26.00	0.07	1.5
September	379.00	421.00	0.00	0.00	-9.00	19.00	0.08	1.4
October	626.00	847.00	4.10	0.00	16.00	13.00	0.10	1.5
November	927.00	1,400.00	9.00	0.00	43.00	7.00	0.13	1.4
December	1,393.00	2,010.00	13.20	2.40	76.00	6.00	0.16	1.5
Sum	9,388.00	13,510.00			264.00	232.00		17.5
Average	782.33	1,125.83	5.69	0.77	22.00	19.33	0.12	1.46

(**) NH Electric (Non-Heating Electric Use): includes EAEM (EA-Quip Applicable Electric Measures), cooling use and domestic use of electric.

3. Compliance Review

The State Monitors will be randomly selecting three to four completed energy audits for review every quarter. State Monitors will provide feedback to WAP agencies through a completed Audit Reviews Summary of Finding(s) Form which can be found in the [appendix](#). This serves several purposes:

1. Ensuring NJ homes are being weatherized based on quality and accurate audits.
2. Providing feedback on the quality of the energy audits which will identify weaknesses and need for training for field staff.
3. Reviews foster sharing of expertise among State Monitors and strengthening quality of monitoring.

WAP Agencies are required to correct deficiencies in audits within 30 calendar days of the receipt of the Audit Reviews Summary of Finding(s) Form.