

Louisiana Energy Audit Procedures Weatherization Assistant Audits for Site Built Residential Structures (NEAT v.8.9)

# TABLE OF CONTENTS

INTRODUCTION	6
I. LOUISIANA AUDIT DATA COLLECTION STANDARDS	7
I.1 Procedures	7
I.2 Fuel Costs	8
I.3 Measure Skipping	8
I.4 Cost of Air Sealing	9
I.5 Weatherization Materials Installed	9
I.6 General Heat Waste (GHW) Reduction List	10
I.7 Incidental Repair Measures (IRM)	10
I.8 Ancillary Items	11
I.9 Health and Safety	11
I.10 Equipment Calibration	11
I.11 Energy Audit Data Collection and Field Procedures	11
II. LOUISIANA FINAL INSPECTION STANDARDS	13
II.1 Louisiana Energy Audit Review Checklist	13
III. OBTAINING ACCESS	14
IV. USER PERMISSIONS AND LIBRARY PASSWORDS	16
IV.1 Administrator Setup	16
IV.2 User Setup	18
IV.3 Permission and Password Implementation	20
V. SETUP LIBRARY	24
V.1 Key Parameters	25
V.1.A Key Parameters (Equipment Sub Tab)	25

V.1.B Key Parameters (Windows Sub Tab)	26
V.2 Fuel Costs	27
V.3 Fuel Price Indices	29
V.4 NEAT Insulation Types	30
V.5 Library Measures	31
V.5.A Solar Screen Measures	34
V.5.B AC Replacement Measure	35
V.5.C Data Entry	36
V.6 User Defined Measures	37
VI. SUPPLY LIBRARY	39
VI.1 Refrigerators	41
VI.2 Heating Equipment	42
VI.2.A Heat Pumps	44
VI.3 Cooling Equipment	45
VI.4 Data Collection Methods and Efficiency Conversions	47
VII. AGENCY	48
VII.1 Agency Information	48
VII.2 Contacts	49
VII.3 Cost Centers and Surveys	50
VII.4 Clients	51
VII.5 Audits	52
VII.6 Work Orders	53
VII.7 Libraries	54
VIII. CLIENTS	55
VIII.1 Client Information	55
VIII.2 Status and Energy Index	57
VIII.3 Contacts	58

VIII.4 Audits	59	
IX. ENERGY AUDIT		
IX.1 Audit Information	61	
IX.2 Status	62	
IX.3 Shell	63	
IX.3.A Shell (Walls Sub Tab)	63	
IX.3.B Shell (Windows Sub Tab)	66	
IX.3.C Shell (Doors Sub Tab)	69	
Universal Policy: Window and Door Replacement	71	
IX.3.D Shell (Attics)	72	
IX.3.E Shell (Foundations Sub Tab)	74	
IX.4 Heating	76	
IX.5 Cooling	81	
IX.6 Ducts/Infiltration	83	
IX.6.A Ducts/Infiltration (Air and Duct Leakages Sub Tab)	83	
IX.7 Baseloads	86	
IX.7.A Baseloads (Water Heating Sub Tab)	86	
IX.7.B Baseloads (Refrigerator Sub Tab)	89	
IX.7.C Baseloads (Lighting Systems Sub Tab)	92	
IX.8 Health & Safety	93	
IX.8.A Health & Safety (Equipment Sub Tab)	94	
IX.9 Itemized Costs	95	
IX.10 Utility Bills	98	
IX.11 Photos	98	
IX.12 Measures	99	
X. NEAT RECOMMENDED MEASURES REPORT		
XI. WORK ORDERS	103	

XI.1 Creating a Work Order	103
XI.2 Customizing a Work Order	107
XI.3 Work Order Information	108
XI.4 Measures	109

Attachment A: Louisiana Energy Audit Data Collection Form

- Attachment B: Instructions for Louisiana Energy Audit Data Collection Form
- Attachment C: Louisiana Energy Audit Review Checklist
- Attachment D: Enabled Library Measures for Louisiana NEAT Audits
- Attachment E: Instructions for Measuring Refrigerator Energy Consumption
- Attachment F: Heating and Cooling Equipment Efficiencies
- Attachment G: Instructions for HVAC Supply-Return Duct Testing and Duct Sealing
- Attachment H: Additional ASHRAE 62.2 2016 Guidance
- Attachment I: Instructions for Importing and Exporting NEAT WDZ Files

## Introduction

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.

If you are performing energy audits for site built residential structures, use the National Energy Audit Tool (NEAT).

If you are performing energy audits for manufactured homes, use the Manufactured Home Energy Audit program (MHEA).

All information for clients, energy audits, work orders, and setup information for the Weatherization Assistant is stored in a single Microsoft Access database file. The user interface is also written in Access and those familiar with this software will feel comfortable with the data entry conventions. However, the Microsoft Access software is not necessary to use the Weatherization Assistant.

## I. Louisiana Audit Data Collection Standards

Auditors must develop a comprehensive list (i.e. work order) of energy conservation measures and health & safety upgrades for existing single family and manufactured housing stock in Louisiana using whole house building science founded principals.

LA WAP will use BPI's current Approved American National Standards (ANSI) approved home energy auditing standards as the **minimum** criteria and procedures for conducting Pre and Post field inspections, audit data collection, and diagnostic testing procedures for auditors and Quality Control Inspectors (QCI).

LA WAP will use the BPI's ANSI/BPI-1100-T-2014 Home Energy Auditing Standards and ANSI BPI-1200-S-2017 Standard Practice for Basic Analysis of Buildings for the **minimum** criteria for conducting a building science-based residential energy audit.

ANSI/BPI-1100-T-2014 Home Energy Auditing Standard: http://www.bpi.org/sites/default/files/ANSI-BPI-1100-T-2014%20Home%20Energy%20Auditing%20Standard.pdf

ANSI BPI-1200-S-2017 Standard Practice for Basic Analysis of Buildings: http://www.bpi.org/sites/default/files/ANSI%20BPI-1200-S-2017%20Standard%20Practice%20for%20Basic%20Analysis%20of%20Building s.pdf

#### I.1 Procedures

All WAP measures will be cost effective as defined by DOE with a savings-toinvestment ratio (SIR) which meets or exceeds 1.0, except for the cost of materials needed to eliminate health and safety hazards existing before or because of the installation of weatherization materials and general air sealing, including duct sealing.

## I.2 Fuel Cost

The current State average fuel cost that is entered in the Weatherization Assistant energy audit software NEAT and MHEA setup library for a particular fuel type will be the cost associated with a unit consumption of that fuel (e.g., the cost per kilowatt hour for electricity, the cost per therm for natural gas). This information will be gathered by the Grantee for the State of Louisiana and updated annually from the U.S. Energy Information Administration (<u>www.eia.gov</u>) using the "Average Retail Prices of Electricity to Ultimate Customers by End-Use Sector" (<u>https://www.eia.gov/electricity/monthly/epm\_table\_grapher.php?t=epmt\_5\_06\_b</u>) for cents per Kilowatt-hour of electricity and "Average Price of Natural Gas Sold to Residential Consumer, by state" (<u>https://www.eia.gov/dnav/ng/hist/n3010la3m.htm</u>) for natural gas.

The fuel cost data will not include any cost that does not depend on the per unit consumption of the fuel, such as a fixed customer charge, meter charge, or franchise fee. For electricity and natural gas, the fuel cost entered should be the marginal cost associated with these fuels statewide. Propane prices will be collected statewide annually and averaged for the setup library in Weatherization Assistant NEAT and MHEA. Annual data will be provided at the beginning of each Program Year by the Grantee and provided to all Subgrantees.

### I.3 Measure Skipping

The list of prioritized WAP measures from the NEAT\MHEA audit must be installed in the unit in the order of cost–effectiveness. No deviation from the prioritized audit should happen as this would be a conflict of DOE rules.

If a measure is declined by a client, owner or occupant, appropriate client education would be provided to possibly eliminate the client's concerns. If the auditor deems the reason for declining the measure is legitimate, the auditor will complete all other weatherization measures and include in the client's file a comprehensive explanation of the rationale for skipping the specific measure. If the auditor deems this is not a legitimate reason for declining the measure, the work would be completed with installation of only measures with a higher SIR than the declined measure, and the client must be informed and documented that the home cannot receive future weatherization services. At no point will measure skipping of cost-justified major measures occur (i.e. air sealing, duct sealing of ducts outside the thermal boundary, attic insulations, wall insulation and floor or belly insulation). Louisiana will follow the guidance established by DOE in WPN 19-4, Attachment 8 for alterations of a cost-justified work order.

#### I.4 Cost of Air Sealing

The cost of air sealing installed as an energy saving measure, which includes duct sealing, will be included in the overall SIR package of weatherization measures installed. The package of weatherization measures, including air sealing and duct sealing cost, will have a post-weatherization cumulative SIR of 1.0 or greater.

#### **I.5 Weatherization Materials Installed**

Only weatherization materials that **meet or exceed** the standards listed in Federal Regulations 10 CFR Appendix A to Part 440.21(b) will be installed in eligible sitebuilt single family and manufactured dwelling units.

Ancillary materials, incidental repair materials, as well as health and safety materials, are not required to be listed in Appendix A. Measure cost and fuel cost will be updated annually or more often if a significant change in cost of measures or fuel cost is indicated that Weatherization Assistant NEAT and MHEA uses to estimate cost-effectiveness.

The following materials have DOE approval to be included with approved energy conservation materials listed in 10 CFR 440 Appendix A in Louisiana:

- Light Emitting Diode (LED) Lighting (Energy Star or Equal)
- Refrigerators (Energy Star or Equal)
- Low Flow Showerheads (2.5 gallons per minute (GPM) or less)
- Low Flow Faucet Aerators (1.0 GPM or less)

**Default** NEAT and MHEA expected lifetimes of **all** measures will be used in the NEAT and MHEA Setup Library, except for approved DOE revised measure maximum lifetimes (as per Attachment 9 of WPN 19-4) for Louisiana as follows:

NEAT Measures Considered	Life Expectancy
Attic insulation R-11	30 Years
Attic insulation R-19	30 Years
Attic insulation R-30	30 Years
Attic insulation R-38	30 Years
Attic insulation R-49	30 Years
Fill Ceiling Cavity	30 Years
Wall Insulation	30 Years
Lighting Retrofits (LED only)	20 Years

## I.6 General Heat Waste (GHW) Reduction List

DOE approved GHW materials are provided with procedures to guide installation and will be installed in eligible homes without the need for justification. GHW items are intended to be relatively low-cost items that can be quickly and easily installed. The total GHW measure costs including labor **will not exceed \$250.00**. Louisiana DOE approved GHW materials are as followed:

- Water heater wrap
- Water heater pipe insulation
- Faucet aerators
- Low-flow showerheads
- Limited weather-stripping and caulking for comfort
- Furnace or air conditioner filters
- Attic Hatch box weather stripping

#### I.7 Incidental Repair Measures (IRM)

Incidental Repair Measures are those minor repairs and installation of materials **necessary** for the **effective** performance or preservation of weatherization materials and must be justified in the client file with an explanation for their need and relationship to a specific energy conservation measure (ECM) or group of ECMs installed.

Justification of IRMs with one or more ECMs will have a total post-weatherization cumulative SIR of 1.0 or greater for the weatherized unit. Removal of the ECM with the lowest SIR and its related IRM will be used to achieve total post-weatherization cumulative SIR of 1.0 or greater. If one IRM is necessary to protect or enhance more than one ECM, then all of those ECMs together must be considered for removal until the total SIR for the package of measures is 1.0 or greater.

Funds will **not** be used to install IRMs deemed necessary to protect material in the building before the WAP audit is performed.

#### I.8 Ancillary Items

These are items **necessary** for proper installation of WAP materials. The cost of ancillary items and installation are to be **included** within the cost of the individual ECM when calculating the SIR for that individual EMC.

## I.9 Health and Safety

Field procedures used for both site-built single family and manufactured homes will be identified in Louisiana's WAP Health and Safety Plan, WAP Field Guides and Master File.

As a rule, Louisiana WAP **does not permit** the general practice of non-renewable fuel switching when replacing furnaces/appliances.

### I.10 Equipment Calibration

All in use WAP audit equipment requiring calibration shall be maintained and calibrated according to the manufacturer's recommendations. Calibration documentation must be submitted **annually** to LHC at the time of monitoring.

### I.11 Energy Audit Data Collection and Field Procedures

An energy audit includes a site visit where data is collected and recorded using the Energy Audit Data Collection Form. Accurate documentation on diagnostic test processes, client education and site-specific energy modeling data is collected to use within the WA software.

Every completed weatherized unit **must** have a **Louisiana Energy Audit Data Collection Form** completed with pre and post (final inspection) audit data documented. WAP providers **must** have local procedures to ensure pre and post audit data collection are completed and accurate.

Attachment A: Louisiana Energy Audit Data Collection Form

<u>Attachment B</u>: Instructions for Louisiana Energy Audit Data Collection Form

## **II. Louisiana Final Inspection Standards**

Auditors will need to reconcile the energy audit **Recommended Measures Report** to the final scope of work or work order. This is done by verifying only the measures called for on the **Recommended Measures Report** are on the scope of work or work order.

All Health & Safety, Incidental Repair, and Energy Conservation Measures completed on the unit **must** be on the scope of work or **Work Order**.

**All** Health & Safety, Incidental Repair and Energy Conservation Measures completed on the unit **must** be on the Energy Audit's **Recommended Measure Report**.

Auditors must verify that installed ECM measures have an SIR of 1.0 or greater as determined by WA audit report.

#### II.1 Louisiana Energy Audit Review Checklist

Every completed weatherized unit **must** have a **Louisiana Energy Audit Review Checklist** completed by the Quality Control Inspector.

The Quality Control Inspection must include an assessment of the original audit and confirm that the measures called for on the work order were appropriate and in accordance with Louisiana audit procedures and protocols approved by DOE.

Quality Control Inspectors and LHC Technical Monitors are **required** to use the Louisiana Energy Audit Review Checklist to verify initial field audit data collection and audit software data entry on every completed unit weatherized in Louisiana.

#### Attachment C: Louisiana Energy Audit Review Checklist

## **III. Obtaining Access**

The computer-based Weatherization Assistant application provides access to the National Energy Audit Tool (NEAT) and the Manufactured Home Energy Audit (MHEA). Version 8.9.0.5 is the latest version of the computer-based Weatherization Assistant application.



Link to obtain and download the latest version of Weatherization Assistant 8.9: <u>https://weatherization.ornl.gov/obtain/</u>

This is the latest executable installation file for Version 8.9.0.5 of the computerbased Weatherization Assistant application, which was released on February 10, 2012.

The executable file is provided as a zip file. After downloading the zip file to your computer, double click on it to unzip it into an exe file. After the zip file has been unzipped, it is no longer needed and can be deleted from your computer.



Click on the **WA** icon to install.

After installing the **WA** software Double Click the **WA 8.9** icon on the desktop to access the **WAP Assistant**.



The main **WA Main Menu Splash Screen** will appear. See **WA Main Menu Splash Screen** below.

#### WA Main Menu Splash Screen

🔢 WA 8.9.0.5			X
*	Agency		
	Clients		
	Energy Audits		
<del>} }</del>	Site Built (NEAT)		
	Mobile Home (MHEA)		
Weatherization Assistance Program	Work Orders		
<database>: C:\ProgramData\Weat Description: Default Backend Datal</database>	nerization Assistant 8-9\wa8-9.mdb base File		Data Link
Setup Library Supply Library	Preferences	Help	ExitWA

## **IV. User Permissions and Library Passwords**

To set the **Log-On and Password** for Groups in WA, open the **Agency** tab from **WA Main Menu Splash Screen**.

E WA 8.9.0.5			×
*	Agency		
	Clients		
	Energy Audits		
	Site Built (NEAT)		
	Mobile Home (MHEA)		
Weatherization Assistance Program	Work Orders		
<database>: C:\Users\cdunn\Deskt</database>	op\Testwa8-9sample.mdb		Data Link
Description: Sample Backend Data	abase		
Setup Library Supply Library	Preferences	Help	ExitWA

## **IV.1 Administrator Setup**

Click on the **Contact** tab and enter the person who will be the administrator of WA libraries. Existing contacts can be accessed from the **Agency Contact** control box in the bottom right.

Agency		
Agency Name Louisiana		State US
Agency Information Contacts (1) Cost Centers (1	0) Surveys (0) Clients (1) Audits	(2) Work Orders (4) Libraries (2) Status History
Contact Name Admin, Adam Library	User Name ADMIN	Active 🔽 References
Name Detail - First Adam MI	Libre Last Admin	Work Phone 555-5555
Company LA WAP	Address	Cell Phone
Auditor 🔽 EIN	Unit Number	Pager
Contractor Title	City	Fax
	State	Home Phone
ouppiler y	Zip Code	Email
		Web Page
	Comment	
AGENCY CONTACT		
by Contact Name	·	
by User Name	•	Change LogOn Group and Password
by Company	<b>_</b>	
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Copy Del	ረት
		L

Click on the **Change LogOn Group and Password** button in the bottom right hand side of the **Contacts** tab.

User Group and Password (Admin, Adam Library)	$\times$
User Group 🔹	
Change Password	1
Note: Passwords are case sensitve	
Confirm Old Password	
New Password	
Confirm New Password	
Apply New Password	

To add a contact to the library administrator group use the drop down menu in the **User Group** and select **Admin**. Enter a password for the Library admin contact and click **Apply New Password**.

User Group and Password (/	Admin, Adam	Library)		>	<
User Group	Admin	•			
Change Password			•		
Note: Passwords are ca	ase sensitve				
Confirm Old Password					
New Password	slalalalalak				
Confirm New Password	ACCOCCA				
	Apply New F	Password			
Weatheriza	tion Assistant	×			
Password	Updated				
	ОК				

Multiple contacts can be designated as library administrators.

#### **IV.2 User Setup**

All other WA **Users** should only be able to enter into WA audits, run audits, reports and work orders. To do this enter or select the contact on the **Contact** tab and click on the **Change LogOn Group and Password** button in the bottom right hand side of the **Contacts** tab.

E Agency			- 0 2
Agency Name Louisiana		State US	
Agency Information Contacts (2) Cost Center	rs (0) Surveys (0) Clients (1) Audits (2	)   Work Orders (4)   Libraries (2)   Status History	
Contact Name Contractor	User Name contractor	Active 🔽 References	
Name Detail - First Contractor	MI Last	Work Phone 555-55	
Company LA WAP	Address 555 north	Cell Phone	
	Unit Number	Pager	
Contractor Title	City	Fax	
Supplier	State	Home Phone	
	Zip Code	Email	
		Web Page	
	Comment		
AGENCY CONTACT			
by Contact Name	•		
by User Name	•	Change LogOn Group and Password	
by Company	<u> </u>		
II I 2 → >I →* of 2 N	lew Copy Del	<u> </u>	
·			

To add a contact to the **User** group, click **Change LogOn Group and Password**. In the drop down menu select **User**. Enter a password for the user contact and click **Apply New Password**.

Add Auditors, Contactors, Crew and Supplier to the Group users by using the corresponding check box and assigning the contact.

E User Group and Password (Contractor )	×
User Group User 🗸	
Change Password	
Note: Passwords are case sensitve	
Confirm Old Password	
New Password	
Confirm New Password	
Apply New Password	

Admin users are able to change the libraries in WA.

EE User Group and Password (Admin, Adam Library)	$\times \mid$
User Group Admin	
Change Password	
Note: Passwords are case sensitve	
Confirm Old Password	
New Password	
Confirm New Password	
Apply New Password	

Group users are unable to change the libraries in WA.

EE User Group and Password (Contractor )	$\times$
User Group User 💽	
Change Password	_
Note: Passwords are case sensitive	
Confirm Old Password	
New Password	
Confirm New Password	
Apply New Password	



#### **IV.3 Permission and Password Implementation**

To implement this protection, you now must go to **WA Main Menu Splash screen** page and select the **Preferences** button.

EE WA 8.9.0.5			$\boxtimes$
*	Agency		
	Clients		
	Energy Audits		
<u> </u>	Site Built (NEAT)		
	Mobile Home (MHEA)		
Weatherization Assistance Program	Work Orders		
<database>:C:\Users\cdunn\Deskto</database>	pp\Testwa8-9sample.mdb		Data Link
Description: Sample Backend Database			
Setup Library Supply Library	Preferences	Help	ExitWA

Navigate to the **Features** tab.

Select feature (4) under the **Features** tab to **Enable user logons with user names and passwords from the Agency/Client tab**.

Preferences	
General Range Check and Default Values Report Sections Features	
Digital Photo Options for Client, Audit, and Work Orders	
1) Use photo browser tab for attaching individual image file pathnames to records	
□ 2) Use third party photo browser for attaching a single directory of images files to records	
Other Optional Features	
□ 3) Enable geographic information system (mapping). Requires additional support files for each state	
4) Enable user logons with user names and passwords from the Agency/Contacts tab	
5) Enable short codes for the definition and selection of measures, materials, etc	
6) Enable display of internal Access long integer record IDs	
7) Enable the logging of program errors Show History of Program Errors	
8) Enable bookmarks (automatically return to the last record edited) Clear Bookmarks	
$\mathbf{\nabla}$ 9) Use only the latest bookmarked Agency in the find record drop down boxes	
□ 10) Enable the check-in / check-out feature for client records	
$\square$ 11) Automatically generate Itemized cost records for health and safety problems	
12) Show the In Stock column when copying items from a supply library (slow for large databases)	
Restart	

**WARNING BEFORE ACTIVATING** feature (4), be sure all client users know their logins and passwords for all library administrators, auditors, contractors, crew, etc.

E User L	ogo	n Notice	$\times$
!	T a t b	Furning on the logon feature will require you to select a user name and enter a password using records entered on the Agency/Contac tab the next time the program starts. Be sure you have a record entered on that tab with your user name and an assigned password before turning on this feature.	ts I
	c	Yes, I have a username and password ready. Turn on this feature.	
	c	Cancel so I can enter a user name/password record first	
		ОК	



Select **Yes**, and click on the **OK** button to complete the password setup then select the **OK** button again.

For the new settings to take effect, restart the WA software properly by using the **Exit WA** button on the software **WA Main Menu Splash Screen**.



Or for the new settings to take effect, go to the **WA Main Menu Splash Screen** and select **Preferences** button; then navigate to the **Features** tab again and click the **Restart** button on the bottom right of the tab.

E Preferences
General Range Check and Default Values Report Sections Features
Digital Photo Options for Client, Audit, and Work Orders
I) Use photo browser tab for attaching individual image file pathnames to records
2) Use third party photo browser for attaching a single directory of images files to records
Other Optional Features
$\square$ 3) Enable geographic information system (mapping). Requires additional support files for each state
(4) Enable user logons with user names and passwords from the Agency/Contacts tab
$\square$ 5) Enable short codes for the definition and selection of measures, materials, etc
□ 6) Enable display of internal Access long integer record IDs
7) Enable the logging of program errors Show History of Program Errors
8) Enable bookmarks (automatically return to the last record edited) Clear Bookmarks
9) Use only the latest bookmarked Agency in the find record drop down boxes
□ 10) Enable the check-in / check-out feature for client records
11) Automatically generate Itemized cost records for health and safety problems
🔽 12) Show the In Stock column when copying items from a supply library (slow for large databases)
Roctert

Upon restarting the WA software, the Log On box will appear for software access.

E Weatheriza	tion Assistant Log O	'n	$\times$
User Name	ADMIN	•	LogOn
Password			Exit
1	Anatabase> C\Users'	\cdupp\Desktop\Testwa8-9sample mdb	

#### Select the appropriate WA **User** and click **LogOn**.

E Weatheriza	tion Assistant Log O	n	×
User Name	contractor	•	LogOn
Password	1		Exit

## V. Setup Library

EE WA 8.9.0.5		X	
	Agency Clients Energy Audits Site Built (NEAT) Mobile Home (MHEA)		
Assistance Program	Work Orders		
<database>: C\Users\cdunn\Desk Description: Sample Backend Dat</database>	top\Test wa8-9sample.mdb abase	Data Link	
Setup Library Supply Library	Preferences He	elp ExitWA	

From WA Main Menu Splash Screen, select Setup Library.

The **Setup Library Information** tab can be used to name, create, copy or delete Setup Library databases and data using the bottom left window.

	🗄 Setup Library 📃 🗖 🔀
	Library Name Setup LA WAP Library References
	Setup Library Information Key Parameters Fuel Costs (1) Fuel Price Indices Library Measures User Defined Measures (2) NEAT Insulation Types
	Library Name Setup LA WAP Library
	Agency Louisiana State US
	<supply library="">LA WAP Supply Lib</supply>
	Description 2020
	Comment
~	SETUP LIBRARY
4	by Library Name     •     •     •     •       IN     IN     of     5     New     Copy       Del     •     •     •

### V.1 Key Parameters

#### V.1.A Key Parameters (Equipment Sub Tab)

Under the **Key Parameters** tab, click on the **Equipment** sub tab. If no Equipment tab is displayed then you are viewing MHEA, change to NEAT via the bottom right window drop-down menu.

Name       Value       Units         Window A/C replacement SEER       1       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	Libr Setup	ary Name Setup LA WAP Library	ce Indices Libra	ry Measures User De	efined Measure
Window A/C replacement SEER       Image: Control A/C replacement SEER       Image: Control A/C replacement SEER (Cooling)         Central A/C 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			l Value	Linito	
Image: Second			value	Onits	
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	<u> </u>	VVIndow Ayu replacement SEEK	10	Btu/Wh Deutute	
Record:       1 </td <td></td> <td>Uentral AU replacement SEER</td> <td>13</td> <td>Btu/wn Deutude</td> <td></td>		Uentral AU replacement SEER	13	Btu/wn Deutude	
SEER used to impute cooling savings       13 ha         Low flow shower head flow rate       2.5 gal/min         Refrigerator defrost cycle energy       0.08 kWh	-	RED used to impute cooling acting	13	btu/wn	
Refrigerator defrost cycle energy 0.08 kWh		SEER used to impute cooling savings	13	na na Vesie	
Record: K		Low now shower head now rate	2.5	gai/min	
	R	ecord: 【◀ 【 【 1 ▶ ▶ 【 ▶ ★ of 6			

Here the auditor can adjust, change, or update the energy efficiencies of newer equipment.

Input changes to the Window A/C replacement SEER, Central A/C replacement SEER, Heat pump replacement SEER (Cooling), and SEER used to impute cooling savings to actual replacement SEER values of "ENERGY STAR" equipment. (Ex: from 13 SEER to 14.5 SEER). The higher the SEER value used - the higher the chances are that it will rank as an ECM. Equipment input must match the equipment being installed.

Some newer shower heads are rated for 1.5 gallons per minute. This also can be adjusted on the Equipment sub tab

E Setup Library	
Library Name Setup LA WAP Library	References
Setup Library Information Key Parameters Fuel Costs (1) Fuel Price	Indices   Library Measures   User Defined Measures (2)   NEAT Insulation Types
Economics Set Points Insulation Equipment Windows	
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/hin
Refrigerator defrost cycle energy	0.08 KWł
Record: I	

#### V.1.B Key Parameters (Windows Sub Tab)

E Setup Library										
Library Name Setup LA WAP Library		References								
Setup Library Information Key Parameters Fuel Costs (1) Fuel Price In	Setup Library Information Key Parameters   Fuel Costs (1)   Fuel Price Indices   Library Measures   User Defined Measures (2)   NEAT Insulation Types									
Economics Set Points Insulation Equipment Windows										
Name	Value	Units								
Replacement Window U-Value	1.46	Btu/F-saft-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: I										
NEAT										
VIEW Site Built (NEAT) Key Parameters										

Here the auditor can verify, adjust, change, or update new replacement window energy efficiency information.

Adjustable energy efficiencies include the units of U-values, Solar Heat Gain Coefficients (SHGCs), and window emittance.

Obtain this information from the window vendor's technical literature or off the label on the window.

## V.2 Fuel Costs

E Setup Lib	rary	1					- • •				
Library Na	me	Setup LA V	VAP Library		F	References					
Setup Library	p Library Information Key Parameters Fuel Costs (1) Fuel Price Indices Library Measures User Defined Measures (2) NEAT Insulation Types										
Fuel Cost T	Fuel Cost Table Name Dafault Costs References										
	Со	mment Averag	e National Fuel Costs								
		r	1								
		Fuel Type	In Units of	Unit Cost	Heat Content (MMBtu)						
	•	Natural Gas	Collon	14.230	1.00000						
		Electricity	LAAK .	0.110	0.140000						
		Pronane	Gallon	2 600	0.003413						
		Wood	Cord	133.000	20.200000						
		Coal	Ton	160.000	21 000000						
		Kerosene	Gallon	3,710	0.130000						
		Other	MMBtu	6.250	1.000000						
			1								
-FUEL C	os	тя									
bu No	-										
Dy No.	me			<u> </u>							
14 4	1	► ►I of	1 Copy Del								

Here the auditor can verify, adjust, change, or update the actual pricing for fuel during an audit.

**LA WAP Policy**: LHC will provide **annual program year updates** to the three major fuels prices most commonly used in Louisiana's housing stocks.

**Warning:** After installing or reinstalling the Weatherization Assistant software on a computer, the **Fuel Costs** library will be set to a default fuel cost.

Do not use the default fuel pricing/cost. This will make the unit's audit not in compliance with LA Wx Standards and DOE rules.

E Setup Librar	у								
Library Name	e Setup LA W	AP Library			References				
Setup Library Inf	ormation   Key P	arameters Fuel Cost	s (1) Fuel Price	Indices Library Measures	User Defined I	Measures (2) NE	EAT Insulation Types		
Fuel Cost Tabl	le Name Dafault omment Averag	Costs e National Fuel Costs		Re	ferences				
_		1			1				
	Fuel Type	In Units of	Unit Cost	Heat Content (MMBtu)	<u> </u>				
	Natural Gas	Mcf	14.230	1.000000					
		Gallon	3.710	0.140000					
	Electricity	KVVN Qallar	0.110	0.003413					
-	Propane	Gallon	2.600	0.090000					
	Cool	Ton	100,000	20.200000					
	Karasana	Collen	100.000	21.00000					
	Othor	MAND:	3.710 6.2E0	1.00000					
		IVIIVIDIU	0.230	1.00000					
FUEL COS by Name	TS → ⊨ of	1 <u>Copy</u> Del	•		-				

After a fuel cost adjustment is made, read the pop-up box warning about edits to the Setup Library and changes it may have on existing audits. Then click on **Make the changes and don't prompt me with this message again** in the pop-up screen. Fuel costs can be updated individually (i.e Electricity kWh).

Audit ru	ns with this Setup Library	$\times$
?	This Setup Library has been used to generate recommended measures for: 1 NEAT Audits 1 MHEA Audits Editing this Setup Library may change those results if you try to re-run those audit If you want to archive the audits in a way that recommended measure results can be recreated, then you should copy the Setup Library and make changes only to the copy.	ts.
	C Cancel your changes so you can go back and make copy	
	Make the changes and don't prompt me with this message again     OK	

Additional **Fuel Costs** libraries can be created by clicking **Copy** at the bottom left of the screen.

FUEL COSTS
by Name 🗾 🔹
I Copy Del

### V.3 Fuel Price Indices

The Fuel Price Indices Tab is not used by auditors. Do not adjust.

**LA WAP Policy**: Under LHC supervision and approval, LA WAP Agencies will only make adjustments for the LA WAP DOE approved updated lifetimes for <u>specific</u> measures (see Attachment D). Instructions will be provided by LHC at that time.

E Setup Library					
Library Name Setur	) LA WAP Libra	ary		References	
Setup Library Information	Key Parameters	Fuel Costs (1) Fue	el Price Indices Library Me	asures User Defined Measures (	2) 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	þ.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		
Natural Gas	23	1.25	17.59 🔻		
Record:	4 ▶ ▶ ▶	of 208	• •		

#### V.4 NEAT Insulation Types

Before making changes to the Library Measures and User Defined Measures, verify the **NEAT Insulation Types** are correct for material used for insulation.

Click on the **NEAT Insulation Types** tab.

E Setup Lib	orary									
Library Name Setup LA WAP Library References										
Setup Library Information   Key Parameters   Fuel Costs (1)   Fuel Price Indices   Library Measures   User Defined Measures (2) NEAT Insulation Types										
	Attic		Knee Wall		Wal	II				
	Name	Rs/Inch	Name	R-Value	Name	Value Units				

Auditors can verify R-values for insulation types in the Attic, Knee Wall, Wall, Floor, Sill and Foundation Wall.

Additional insulation types, locations and R-values can be added through the **NEAT Insulation Types** tab if approved by LHC.

E Setup Lib	rary								
Library Na	me Setup LA WAP Li	brary		Refer	ences				
Setup Library	Information Key Paramete	ers   Fuel Costs (1	I) Fuel Price Indices Library M	1easures   Us	er Defined Measures (2)	NEAT Insulation Ty	/pes		
	Attic		Knee Wall		w	Wall			
	Name	Rs/Inch	Name	R-Value	- Name	Value	Units		
Type 1	Blown Cellulose	3.75	Fiberglass Batts	13	Blown Cellulose	3.71	R∕in _•		
Type 2	Blown Fiberglass	3.09	Foam Open Cell knee	3.7					
Type 3	Foam Open Cell attic	3.7	Foam Closed Cell knee	6			R		
Type 4	Foam Closed Cell attic	6					•		
Type 5							-		
Type 6							-		
	Floor		Sill		Foundation Wall				
	Name	Rs/Inch	Name	R-Value	R-Value Name		R-Value		
Type 1	Fiberglass Batts	3.33	Fiberglass Batts	19	Rigid Foam Board	12			
Type 2	Foam Open Cell floor	3.7							
Туре 3	Foam Closed Cell floor	6							
Type 4									
Type 5									
Type 6									
		Insula	tion type names can be up to 30	characters in I	ength				

## V.5 Library Measures

E Setup Libra	🗄 Setup Library											
Library Nam	ne Setup LA	WAP Library		References								
Setup Library I	nformation Key	Parameters   Fuel Costs (1)   Fuel Pr	rice Indices	Library Measures User Defined Measure	es (2) NEAT I	nsulation Type	es					
# Measure	е Туре	Measure Name	Active	Default Contractor Default Cost Center	Life (yr)		•					
1 Building I	Insulation	Attic insulation R11	×	•	• 20	Costs						
2 Building I	Insulation	Attic insulation R19	ম	•	• 20	Costs						
3 Building I	Insulation	Attic insulation R30	<b>N</b>	•	• 20	Costs						
4 Building I	Insulation	Attic insulation R38	V	•	<b>•</b> 20	Costs						
5 Building I	Insulation	Attic insulation R49	V	•	• 20	Costs						
6 Building I	Insulation	Fill ceiling cavity	V	•	• 20	Costs						
7 Building I	Insulation	Sillbox insulation	N	•	• 20	Costs						
8 Building I	Insulation	White roof coating	N	•	• 7	Costs						
9 Building I	Insulation	Foundation wall insulation	N	•	• 20	Costs						
10 Building I	Insulation	Floor insulation R11	N	•	• 20	Costs						
11 Building I	Insulation	Floor insulation R19	N	•	• 20	Costs						
12 Building	Insulation	Floor insulation R30	N	•	• 20	Costs						
13 Building I	Insulation	Floor insulation R38	N	•	• 20	Costs	-					
Record: I	▲ 1	▶ ▶ ▶ ▶ ★ of 45					_					
NEAT												
VIEW Site	Built (NEAT) Me	asuresSelect A	II Ur	Select All Invert Select	All Librar	y Measure Co	sts					

Click on the Library Measures tab.

**NOTE:** For easy setup and measure cost adjusting, make a printout of the **Library Measures** tab by going back to the **Setup Library Information** tab. Select the **Library Measure Costs** report from the drop-down menu in the **Report** section. This will simplify and expedite this section by writing the actual pricing for each item on the print out.

E Setup Library	
Library Name Setup LA WAP Library	References
Setup Library Information Key Parameters Fuel Costs (1) Fuel Price Indice	es   Library Measures   User Defined Measures (2)   NEAT Insulation Types
Library Name Setup LA WAP Library Agency Louisiana  State US	]
<supply library="">LA WAP Supply Lib</supply>	
Description 2020	
Comment	
	$\hat{\nabla}$
SETUP LIBRARY by Library Name H • 4 • H of 5 New Copy Del	PEPORT           Select Report         Library Measure Costs           Preview         Print           Snapshot File

Below is a printed example of the Library Measure Costs for NEAT's ECMs that is used during an audit run. Attention should be made to the Units and Unit\$ columns to verify the correct measure cost for local LA WAP Agencies and DOE justified SIRs analyzed by NEAT.

	arkealio eternes grous	1			Libr	ary 1	Мес	ısur	e C	Costs			
Libr	arv Na	me	Se	tup LA WAP Library				Descrip	tion	2020			
Age	ncv		Lo	uisiana	State	US		Comme	nt				
Sup	ply Lil	orary	LA	WAP Supply Lib									
NEAT	MHEA	#	м	easure Type	Meas	ure Nam		Active	Defau	ilt Con tract	• D	efault Cost Center	Life
P		1	В	uilding Insulation	Attic i	nsulation F	811	×		¢	- U	,	20
			#	Description			Туре			Units	Unit\$	Comment	
			1	Attic Insulation -Blow	n Cellulos	e - R-11	Insulat	tion		SqFt	\$0.11		
			2	Attic Insulation -Blow	n Cellulos	e - R-11	Labor			SqFt	\$0.22		
			3	Attic Insulation -Blow	n Cellulos	e - R-11	Other			Each Atti	\$0.00		
			1	Attic Insulation -Blow	n Fibergla	ss - R-11	Insulat	tion		SqFt	\$0.14		
			2	Attic Insulation -Blow	n Fibergla	ss - R-11	Labor			SqFt	\$0.22		
			3	Attic Insulation -Blow	n Fibergla	ss - R-11	Other			Each Atti	\$0.00		
			1	Attic Insulation -Foan R-11	n Open Ce	ell attic -	Insula	tion		SqFt	9,999.00	Not considered un specified	lless cost is
			2	Attic Insulation -Foan R-11	n Open Ce	ell attic -	Labor			SqFt	\$0.00		
			3	Attic Insulation -Foan R-11	n Open Ce	ell attic -	Other			Each Atti	\$0.00		
			1	Attic Insulation -Foan attic - R-11	n Closed (	Cell	Insula	tion		SqFt	9,999.00	Not considered un specified	lless cost is
			2	Attic Insulation -Foan attic - R-11	n Closed (	Cell	Labor			SqFt	\$0.00		
			3	Attic Insulation -Foan attic - R-11	n Closed (	Cell	Other			Each Atti	\$0.00		
			1	Attic Insulation			Insula	tion		SqFt	9,999.00	Not considered un specified	lless cost is
			2	Attic Insulation			Labor			SqFt	\$0.00		
			3	Attic Insulation			Other			Each Atti	\$0.00		
			1	Attic Insulation			Insula	tion		SqFt	9,999.00	Not considered un specified	iless cost is
			2	Attic Insulation			Labor			SqFt	\$0.00		
			3	Attic Insulation			Other			Each Atti	\$0.00		

A check in the **Active** box identifies the ECMs that will be analyzed by the NEAT software during an audit run. If the software approves, the Energy Conservation measures will be installed.

Library Name Setup LA WAP Agen cy Louisiana Supply Library LA WAP Supply				tup LA WAP Library uisiana WAP Supply Lib	State US	De Co	omme	tion 2020 nt			
NEAT	MHEA	#	M	easure Type	Measure Nam		Active	Default Contracto	De	efault Cost Center	Life
		1	Bu	ilding Insulation	Attic insulation F	R11	M				20
			#	Description		Туре		Units	Unit\$	Comment	
			1	Attic Insulation -Blov	vn Cellulose - R-11	Insulatio	n	SqFt	\$0.11		
			2	Attic Insulation -Blov	vn Cellulose - R-11	Labor		SqFt	\$0.22		

Setup Library Information	Key Parameters   Fuel Costs (1)   Fuel	I Price Indices	uy Measures   User Defined M	ieasures (2)   NEAT Insulation 1;	/pes
# Measure Type	Measure Name	> Active Defau	It Contractor Default Cost Ce	nter Life (yr)	
38 HVAC Systems	Setback thermostat	V	•	- 15 Costs	<
39 HVAC Systems	Tune heating system	V	•	- 3 Costs	
40 HVAC Systems	Evaporative cooling	<b>V</b>	•	• 15 Costs	
41 HVAC Systems	Tune cooling system	ঘ	•	- 3 Costs	
42 HVAC Systems	Replace dx cooling equip	<b>N</b>	-	- 15 Costs	
43 Baseloads	Lighting retrofits	V	-	- 10 Costs	
44 Baseloads	Refrigerator replacement	ম	•	✓ 15 Costs	
45 Baseloads	Water heater tank insulation	<b>V</b>	•	• 13 Costs	
46 Baseloads	Water heater pipe insulation	ঘ	-	- 13 Costs	
47 Baseloads	Low flow showerheads	<b>N</b>	-	- 15 Costs	
48 Baseloads	Water heater replacement	ম	•	✓ 13 Costs	
49 HVAC Systems	Replace heating system	ঘ	•	✓ 18 Costs	
Record: 📕	1 ▶ ▶ ▶ ▶ ■ 1 ■ 1 1 1 1 1 1 1 1 1 1 1 1				

Use the checkbox in the **Active** column (third column) to turn off measures that are not used (with approval from LHC). You want to keep as many active as possible.

#### Attachment D: Enabled Library Measures for Louisiana NEAT Audits

Click on the **Costs** button of a measure type to adjust the ECMs material and labor cost.

The NEAT software analyzes 45 ECM types, and the MHEA software analyzes 49 ECM types. A check in the **Active** box indicates the software will analyze this measure for a SIR.

E Unit Costs for Measure: 1) Attic insulation R11				>
Description	Туре	Units	Unit\$	<comment></comment>
Attic Insulation -Blown Cellulose - R-11	Insulation	SqFt	111	
	Labor	SqFt	0.22	<
	Other	Each Attic	0.00	
Attic Insulation -Blown Fiberglass - R-11	Insulation	SqFt	0.14	
	Labor	SqFt	0.22	
	Other	Each Attic	0.00	
Attic Insulation -Foam Open Cell attic - R-11	Insulation	SqFt	9999.00	Not considered unless cost is specified
	Labor	SqFt	0.00	
	Other	Each Attic	0.00	
Attic Insulation -Foam Closed Cell attic - R-11	Insulation	SqFt	9999.00	Not considered unless cost is specified
	Labor	SqFt	0.00	·
	Other	Each Attic	0.00	
		企		

The **Library Measures** tab is a front end user interface which is connected to an MS access database. This database contains NEAT's ECM descriptions, costs for material and labor, units of material used, and other costs associated with installation of the ECMs.

#### V.5.A Solar Screen Measures

If installing solar screens that block out **80% of heat gain or more**, then click on the **Sun screen fabric** active box (measure #23). Files must have documentation that the solar screen fabric is rated such.

If you are using a fabric **below 80%**, then click off the **Sun screen fabric** active box (measure #23).

E Setup Library								
Library Name Setup LA WAP Library References								
Setup Library Information Ke	y Parameters   Fuel Costs (1)   Fuel F	rice Indices Lib	rary Measures User Defined	Measures (2) NEAT Insulation	n Types			
# Measure Type	Measure Name	Active Defa	ult Contractor Default Cost C	ienter Life (yr)				
19 Doors and Windows	Storm windows	<b>v</b>	•	▼ 15 Costs				
20 Doors and Windows	Window replacement	<b>v</b>	•	- 20 Costs				
21 Doors and Windows	Low E windows	<b>v</b>	•	→ 20 Costs				
22 Doors and Windows	Window shading (awning)	<b>v</b>	•	▼ 10 Costs				
23 Doors and Windows	Sun screen fabric	<b>-</b>	•	✓ 10 Costs				
24 Doors and Windows	Sun screen louvered	×	•	↓ 15 Costs				
25 Doors and Windows	Window film	J	•	✓ 15 Costs				
26 HVAC Systems	Thermal vent damper	<b>v</b>	•	✓ 10 Costs				
27 HVAC Systems	Electric vent damper	V	•	✓ 10 Costs				
28 HVAC Systems	IID	ম	•	• 10 Costs				
29 HVAC Systems	Electric vent damper IID	ম	•	• 10 Costs				
30 HVAC Systems	Flame retention burner	<b>v</b>	•	✓ 10 Costs				
31 HVAC Systems	Furnace tuneup	<b>v</b>	•	• 3 Costs	-			
Record: I	24 ▶ ▶ ▶ ₩ • 45							
NEAT								
VIEW Site Built (NEAT) M	VIEW Site Built (NEAT) Measures Select All UnSelect All Invert Select All All Library Measure Costs							

Cost details for other solar blocking ECMs, such as **awning**, **louvered screen**, and **window film**, can be adjusted within the Library Measure Tab in the Setup Library using the **Costs** button. These may be adjusted **with LHC approval**. Without LHC approval, the **default** settings must be used.

ie U	nit Costs for Measure: 22) Window shading (awning)					Х
	Description	Туре	Units	Unit\$	<comment></comment>	
Av	mings	Windows	Linear Foot	25.00		
		Labor	Linear Foot	0.00		
		Other	Each Awning	25.00		

#### V.5.B AC Replacement Measure

🗄 Setup Library								
Library Name Setup LA	WAP Library		References					
Setup Library Information Key	y Parameters   Fuel Costs (1)   Fuel P	rice Indices	Library Measures User Defined Measur	es (2) NEAT li	nsulation Ty	rpes		
# Measure Type	Measure Name	Active	)efault Contractor Default Cost Center	Life (vr)		•		
34 HVAC Systems	High eff boiler		•	• 15	Coste			
35 HVAC Systems	Smart thermostat	<u> </u>		• 15	Coete			
36 HVAC Systems	Tuneun AC		•	• 3	Costs			
37 HVAC Systems			•	• 15	Coete			
38 HVAC Systems	Evanorative cooler			• 15	Coete			
39 HVAC Systems	Install/Benlace heatnumn		•	• 15	Costs			
40 Baseloads	Lighting retrafits	- -		• 10	Coete			
41 Baseloads	Befrigerator replacement		•	• 15	Costs			
42 Baseloads	Water heater tank insulation	<b>v</b>	•	• 13	Costs			
43 Baseloads	Water heater pipe insulation	<b>v</b>	•	• 13	Costs			
44 Baseloads	Low flow showerheads		•	• 15	Costs			
45 Baseloads	Water heater replacement	<b>v</b>	•	• 13	Costs			
Record: 14 4 34 b b b* of 45								
NEAT								
VIEW Site Built (NEAT) Me	easures - Soloct A		alact All Invart Salact	All Libren	/Moacuro (	Coste		
one Build (MEXT) Me					y weasure (			

Description	Type	Units	Unit\$	<comment></comment>
Window A/C - 5,000 Btu	Cooling Equipment	Each	400.00	
	Labor	Each	100.00	
	Other	Each	0.00	
Vindow A/C-15,000 Btu	Cooling Equipment	Each	500.00	
	Labor	Each	100.00	
	Other	Each	0.00	
Window A/C -25,000 Btu	Cooling Equipment	Each	700.00	
	Labor	Each	100.00	
	Other	Each	0.00	
Central A/C - 2 Ton	Cooling Equipment	Each	1400.00	
	Labor	Each	400.00	
	Other	Each	0.00	
Central A/C - 3 Ton	Cooling Equipment	Each	1700.00	
	Labor	Each	400.00	
	Other	Each	0.00	
Central A/C - 4 Ton	Cooling Equipment	Each	2000.00	
	Labor	Each	400.00	
	Other	Each	0.00	

Click on **Replace AC** (measure #37) **Costs** for HVAC Systems.

With NEAT, the BTU descriptions are SET units and cannot be changed. Choose the closest BTU value to the unit being installed. NEAT will adjust pricing and sizing to what is appropriate.

Note: There are 12,000 BTU in 1 ton unit.

#### V.5.C Data Entry

Attention to detail and accuracy are needed in the **Library Measure** setup tab and the connected MS database.

The ECM total cost must be comprehensive and accurate for the units for each ECM (i.e. Sq. Ft, linear foot, each, per bag, etc).

Library Name       Setup LA WAP Library       References         istup Library Information       Key Parameters       Fuel Costs (1)       Fuel Price Indices       User Defined Measures (2)       NEAT Insulation Type         If       Measure Type       Measure Name       Active       Default Contractor       Default Cost Center       Life (vr)         1       Building Insulation       Attic insulation R11       If       -       -       20       Costs         2       Building Insulation       Attic insulation R19       If       -       20       Costs         3       Building Insulation       Attic insulation R30       If       -       20       Costs         4       Building Insulation       Attic insulation R38       If       -       20       Costs         5       Ruilding Insulation       Attic insulation R49       If       -       20       Costs         5       Ruilding Insulation       Attic insulation R11       If       -       20       Costs         4       Building Insulation       R49       If       -       20       Costs         5       Ruilding Insulation R11       If       -       20       Costs       20       Costs         4				1		
stup Library Information       Key Parameters       Fuel Costs (1)       Fuel Price Indices       Library Measures       User Defined Measures (2)       NEAT Insulation Type         #       Measure Type       Measure Name       Active       Default Contractor       Default Cost Center       Life (vf)         1       Building Insulation       Attic insulation R11       V       -       20       Costs         2       Building Insulation       Attic insulation R30       V       -       20       Costs         3       Building Insulation       Attic insulation R38       V       -       20       Costs         4       Building Insulation       Attic insulation R38       V       -       20       Costs         5       Ruilding Insulation       Attic insulation R18       V       -       20       Costs         Other       SqR       0.22         Other       SqR       0.22 <td colspan<<="" th=""><th>ibrary Name Setup LA WAP Library</th><th></th><th></th><th>References</th><th></th></td>	<th>ibrary Name Setup LA WAP Library</th> <th></th> <th></th> <th>References</th> <th></th>	ibrary Name Setup LA WAP Library			References	
#       Measure Type       Measure Name       Active       Default Contractor       Default Cost Center       Life (yr)         1       Building Insulation       Attic insulation R11       Image: Cost Section R11       Image: Cost Section R12       Image: Cost Section R12       Image: Cost Section R13       Ima	tup Library Information   Key Parameters   Fuel Costs	(1) Fuel Price Indices	Library Measures	S User Defined	Measures (2) NEAT Insulation Types	
1       Building Insulation       Attic insulation R11       Image: Constant of the second	Measure Type     Measure Name	Active D	efault Contractor	Default Cost	Center Life (yr)	
2       Building Insulation       Attic insulation R19       ✓       ✓       20       Costs         3       Building Insulation       Attic insulation R30       ✓       ✓       20       Costs         4       Building Insulation       Attic insulation R38       ✓       ✓       20       Costs         5       Building Insulation       Attic insulation R38       ✓       ✓       ✓       20       Costs         5       Building Insulation       Attic insulation R38       ✓       ✓       ✓       ✓       20       Costs         5       Building Insulation       Attic insulation R49       ✓       ✓       ✓       ✓       20       Costs         nit Costs for Measure: 1) Attic insulation R11        ✓       ✓       ✓       20       Comment>         tic Insulation -Blown Fiberglass - R-11       Insulation       SqR       0.01       0.01       0.01       0.01       0.02       0.01       0.01       0.02       0.01       0.01       0.02       0.01       0.02       0.01       0.01       0.01       0.01       0.01       0.01       0.01       0.01       0.01       0.01       0.01       0.01       0.01       0.01       0.01 <td< td=""><td>1 Building Insulation Attic insulation R11</td><td>ম</td><td>-</td><td>•</td><td>- 20 Costs</td></td<>	1 Building Insulation Attic insulation R11	ম	-	•	- 20 Costs	
3 Building Insulation Attic insulation R30 4 Building Insulation Attic insulation R38 5 Building Insulation Attic insulation R49 5 Building Insulation Attic insulation R49 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 Building Insulation Attic insulation R19	ম	•	- •	- 20 Costs	
4 Building Insulation       Attic insulation R38       Image: Costs         5 Building Insulation       Attic insulation R49       Image: Costs         nit Costs for Measure: 1) Attic insulation R11       Image: Costs         Description       Type       Units       Units         Labor       SqFt       Image: Costs         Other       Back Attic       0.00         tic Insulation -Blown Fiberglass - R-11       Insulation       SqFt       0.01         Use or       SqFt       0.02       Other       Each Attic       0.00         tic Insulation -Floam Open Cell attic - R-11       Insulation       SqFt       0.01       Other         Linsulation -Floam Open Cell attic - R-11       Insulation       SqFt       0.00       Image: Cost of the asure: 22) Window shading (awning)         Description       Type       Units       Units       Units       Vinit on and the asure: 23) Smart thermostat         Intersection       Type       Units       Units       Units       Vinit       Comment>	3 Building Insulation Attic insulation R30	ম	•		• 20 Costs	
5       Building Insulation       Attic insulation R49       ✓       Ø       Ø       ✓       Ø <td>4 Building Insulation Attic insulation R38</td> <td>ম</td> <td>•</td> <td>- •  </td> <td>• 20 Costs</td>	4 Building Insulation Attic insulation R38	ম	•	- •	• 20 Costs	
nit Costs for Measure: 1) Attic insulation R11          Description       Type       Units       Units       <          tic Insulation -Blown Cellulose - R-11       Insulation       SqR       010         Other       SqR       0.00         SqR       0.00       SqR       0.00         Itic Insulation -Blown Fiberglass - R-11       Insulation       SqR       0.00         Itic Insulation -Flown Fiberglass - R-11       Insulation       SqR       0.00         Other       Each Attic       0.00       0.01         Itic Insulation -Flown Open Cell attic - R-11       Insulation       SqR       0.00         Other       Each Attic       0.00       00         Itic Insulation -Flown Open Cell attic - R-11       Insulation       SqR       0.00         Other       Each Attic       0.00       Each Attic       0.00         Other       SqR       9999.00       Not considered unless cost is specified         it costs for Measure: 22) Window shading (awning)       Each Attic       0.00       Each Attic       0.00         Integration       Type       Units       Units       Vindows       Linear Foot       200         Linear Foot       200       Other       Each Awning       25.00	5 Building Insulation Attic insulation B49	<b>v</b>		 -	• 20 Costs	
Other     Each Attic     0.00       Insulation     SqR     0.14       Labor     SqR     0.22       Other     Each Attic     0.00       Other     SqR     0.22       Other     Each Attic     0.00       Insulation -Foam Open Cell attic - R-11     Insulation     SqR     0.00       Ic Insulation -Foam Open Cell attic - R-11     Insulation     SqR     0.00       Other     SqR     0.00     Each Attic     0.00       Ic Insulation -Foam Closed Cell attic - R-11     Insulation     SqR     9999.00     Not considered unless cost is specified       it Costs for Measure: 22) Window shading (awning)     Each Attic     0.00     Inear Foot     Strong       Description     Type     Units     Units     <     Comment>       inings     Windows     Linear Foot     Strong     Linear Foot     Strong       it Costs for Measure: 35) Smart thermostat     Description     Type     Units     Units     <	nit Costs for Measure: 1) Attic insulation R11 Description tic Insulation -Blown Cellulose - R-11	Type Insulation	Units SqFt SqFt	Unit\$ 0.11 0.22	<comment></comment>	
Instruction     Cyrin     Critical Control       Labor     SqR     0.00       Other     Each Attic     0.00       Labor     SqR     9999.00 Not considered unless cost is specified       Labor     SqR     0.00       Control     Control     SqR       Other     SqR     9999.00       Considered unless cost is specified     SqR       SqR     9999.00     Not considered unless cost is specified       it Costs for Measure: 22) Window shading (awning)     SqR     9999.00       Description     Type     Units     Units       Linear Foot     2500     Control       Linear Foot     0.00     Control       Other     Each Awning     25.00	ic Insulation -Blown Fiberalass - B-11	Other	Each Attic SoEt	0.00		
tic Insulation -Foam Open Cell attic - R-11 Insulation SqR 9999.00 Not considered unless cost is specified          Labor       SqR 0.00         Other       SqR 0.00         SqR 9999.00 Not considered unless cost is specified         Other       SqR 0.00         SqR 9999.00 Not considered unless cost is specified         Other       SqR 9999.00 Not considered unless cost is specified         it Costs for Measure: 22) Window shading (awning)       SqR 9999.00 Not considered unless cost is specified         Description       Type       Units       Units         nings       Windows       Linear Foot       2500         Labor       Other       Each Awning       25.00         nit Costs for Measure: 35) Smart thermostat       Description       Type       Units       Units       Comment>		Labor Other	SqFt Each Attic	0.22		
it Costs for Measure: 22) Window shading (awning)           Description         Type         Units         Units         <           Windows         Linear Foot         2500           Labor         Other         25.00           Other         Each Awning         25.00	lic Insulation -Foam Open Cell attic - R-11	Labor Other	SqFt SqFt Each Attic	9999.00 Not.co 0.00 0.00	nsidered unless cost is specified	
init Costs for Measure: 35) Smart thermostat Description Description Description Description Description Type Units Units Vinits Vinit	It Costs for Measure: 22) Window shading (awning) Description	Type	Units	Unit\$	<comment></comment>	
Other Each Awning 25.00 nit Costs for Measure: 35) Smart thermostat Description Type Units Unit\$ <a href="https://www.comment&gt;">www.comment&gt;</a>	migs	Labor	Linear Foot	0.00		
nart Thermostat Heating Equipment Each 5000 Labor C Each 25.00	nit Costs for Measure: 35) Smart thermostat Description nart Thermostat	Type Heating Equipment Labor	Units Each Each	Unit\$ 50.00 25.00	<comment></comment>	
Jnit Costs for Measure: 11) Floor fiberglass loose insl           Description         Type         Units         Units             Ioor Insulation -Fbergls,Blwn         Insulation         Bag         17.00         Bag         0.00           Other         Each         300.00         Description         Description <td< th=""><th>Init Costs for Measure: 11) Floor fiberglass loose insl Description oor Insulation -Fbergls,Blwn</th><th>Insulation Labor Other</th><th>Units Bag Each</th><th>Unit\$ 17.00 0.00 300.00</th><th>∢Comment&gt;</th></td<>	Init Costs for Measure: 11) Floor fiberglass loose insl Description oor Insulation -Fbergls,Blwn	Insulation Labor Other	Units Bag Each	Unit\$ 17.00 0.00 300.00	∢Comment>	
Smart Thermostat     Heating Equipment     Each     5000       Labor     Each     25.00       Other     Each     0.00	nit Costs for Measure: 35) Smart thermostat Description nart Thermostat	Type Heating Equipment Labor	Units Each Each Each	Unit\$ <b>50.00</b> 25.00 0.00	<comment></comment>	

	11 Building Insulation	Floor fiberglass loose insl	₹	•	- 20 Costs
	12 Building Insulation	Floor fiberglass loose insl in Addition	₹	•	• 20 Costs
	13 Building Insulation	Roof cellulose loose insl	√	•	20 Costs
	14 Building Insulation Record:	Roof cellulose loose insl in Addition	<b>v</b>	•	✓ 20 Costs ✓
	MHEA				
¢>	VIEW Mobile Home (M	HEA) Measures Select All	U	InSelect All Invert Select	All Library Measure Costs
### V.6 User Defined Measures

Click on the User Defined Measures Tab.

This is where Health & Safety (H&S) and Incidental Repairs (IRs) are entered.

**LA WAP Policy:** LA WAP Agencies should refer to the **Louisiana Health and Safety Plan** and **DOE Incidental Repairs Memo** for guidance on allowable Louisiana measures.

Select No Energy Savings for both H&S and IRs.

E Setu	o Library						Ţ	Ļ			
Librar	y Name 🤇	Setup LA WAF	<sup>,</sup> Library				Reference				
Setup Li	brary Inforr	nation   Key Paran	neters   Fuel Costs (	1) Fuel Price I	ndices Library	Measure	es User Defi	ned Measu	ures (2) NE/	AT Insulation T	ypes
	Mea	asure # 1	Active 🔽 Includ	e in SIR 🔽	$\triangleleft$	En	ergy Savings	No Energ	ySavings	·	
	Measur	eType Building Ins	sulation	-	N			_	>		
	Measure	Name Incidental F	Repair Roof Patch						J		
Defau	lt Contracto	r/Crew		-							
D	efault Cost	Center		•							
		Detaile			Available f	or Use Ir	Site Buil	t 🔽 Mobi	ile Home 🔽		
Male	#   #	Type <sup>^</sup>	Conv Sunnly^	Des	ription		Linits+	\$/LInit	<co< td=""><td>mment&gt;</td><td></td></co<>	mment>	
•	" Other	1990	copy cuppiy	each	Shpaon	1.00	01110	110.00			1
*						1.00		0.00			
Reco	rd: 🚺		<b>▶  ▶</b> ₩  of 1								
by E	SURES	▶ ▶ ▶ ▶ ★ of 2	New Copy	• Del	Measure Comment						
NEAT											
VIEW	Site Built	(NEAT) Measures	•							All User Mea	sure Costs

For Incidental Repairs to be included in the unit's overall cumulative SIR and ECM cost, **check the Include in SIR** box.

For Health & Safety repairs, **uncheck the Include in SIR** box.

**NOTE:** For easy setup and measure cost adjusting, make a printout of the **User Defined Measures** tab by going back to the **Setup Library Information** tab. Select the **User Defined Costs** report from the drop-down menu in the **Report** section. This will simplify and expedite this section by writing the actual pricing for each item on the print out.

#### LOUISIANA WEATHERIZATION ASSISTANT - NEAT

Below is a printed example of the **User Defined Measure Costs** for NEAT's ECMs that will be analyzed. Attention should be made to the **Units** and **Unit\$** columns to verify correct measure cost and DOE justified SIRs analyzed by NEAT.

	advellus advellus atoms (Fore		Use	er Defined	Mea:	sure C	osts		
Libr	ary Name	Setup LA WAP	Library		Descrip	tion 2020			
Age	ncy	Louisiana		State US	Comme	ent			
Sup	ply Librar	y LA WAP Supply	y Lib						
NEAT	MHEA #	# Measure Type		Measure Nam	Active	Default Contra	acto	Default Cost Center	Life
	<b>v</b> 1	Baseloads		H&S WH					
			Savings	Units	Sa ved	Fuel	In SIR	Comment	
			No Energy	/Savings					
NEAT	MHEA #	# Measure Type		Measure Nam	Active	Default Con tra	acto	Default Cost Center	Life
	✓ 2	Building Insula	tion	Roof repair to protect	aiito 🗹				
			Savings	Units	Sa ved	Fuel	In SIR	Comment	
			No Energy	/Savings					

## VI. Supply Library

Before starting, print out the Library Measure Costs and User Defined Measure Costs from the Report section. Write in your agency's pricings for each. Use the above step by step guide to build or check your libraries. Use Attachment F attached to this guide to assist with heating and cooling system efficiencies.

On the **WA Main Menu Splash Screen**, click on **Supply Library**. This is where new equipment and appliances need to be entered to provide auditors with replacement ECM equipment, Health & Safety items, and common Incidental Repair options to run an audit.

E WA 8.9.0.5			$\boxtimes$			
*	Agency					
	Clients					
	Energy Audits					
<u> </u>	Site Built (NEAT)					
	Mobile Home (MHEA)					
Weatherization Assistance Program	Work Orders					
<database>: C:\Users\cdunn\Deskt</database>	op\Test wa8-9sample.mdb		<b>B</b> A MA			
Description: Sample Backend Date	abase		Data Link			
Setup Library Supply Library Preferences Help Exit W.						

Enter replacement equipment, such as water heaters, refrigerators, cooling/heating equipment, Health & Safety items, Incidental Repairs and other ECM and appliances.

토 Supply								
Supply Name LA WAP Supply Lib	1				Reference:	s		
General Information Cooling Equipme Hot Water Equipment (1) Insulation (0	nt (0)   Construction Ma ))   Labor (0)   Light	terials/H ing (0)	lardware ( Misce	(0)   Door ellaneous Su	rs (0)   H upplies (0)	lealth and Safety Iten Refrigerators (1)	ns (0)   Heating E   Windows (0)	quipment (0)
Description NEWWH								
Manufacturer A. O. SMITH WATER F	ROE Model EEH-5	2		Sup	plier		-	
Units+ Each	• \$/Unit \$650.01	)						
Comment Water Heater								
EnergyDetails >>							1	
Fuel Type Electricity	Energy Factor	0.94						
Capacity 50	Recovery Efficiency	0.98						
Input Units KW	Life (yr)	15						
Input 4.5								
HOT WATER EQUIPMENT		1	Pick Manuf		•	Inventory		
by Description	•		Model		•	Purchased 0		
by Manufacturer	•					Used 0		
by Supplier	<b>.</b>					Available 0		
I I I I I I I I I I I I I I I I I I I	New Copy Del							

For further information regarding Refrigerators, Heating Equipment and Cooling Equipment, please see the following guidance below.

### **VI.1 Refrigerators**

Add new replacement refrigerator information.

Accurate information on **kWhPerYear** usage is needed for NEAT to analyze the replacement refrigerator as an ECM.

**LA WAP Policy**: Agencies must use either the kWh data usage obtained from refrigerator metering or data obtained from the online refrigerator energy consumption database at <u>http://www.mwepa.com/refmods.htm</u>. Refrigerator metering is **required** for refrigerator replacement if a refrigerator's energy consumption is not accurately located via the approved web database.

# <u>Attachment E</u>: Instructions for Measuring Refrigerator Energy Consumption

Use accurate Energy/Details for the replacement appliance.

E Supply					
Supply Name LA WAP Supply Lib			Reference	s	
General Information Cooling Equipment Hot Water Equipment (1) Insulation (0)	(0) Construction Materials/H	lardware (0)     Miscellaneo	Doors (0)   H bus Supplies (0)	lealth and Safety Items Refrigerators (2)	s (0) Heating Equipment (0) Windows (0) Other (0)
Description Refrig (2)		Source		ी रि	
Manufacturer GE	Model U2411-2		Supplier	_	•
Units+ Each 🗸	\$/Unit \$600.00				
Comment					
EnergyDetails >>					
Capacity (cuft) 20	Height (in)	Style	Top Freezer	<b>•</b>	
kWhPerYear: 350	Width (in)	Defrost		•	
Life (yr) 15	Depth (in)	Model Year	0		
		Years Made	0		
REFRIGERATOR by Description by Manufacturer by Supplier	• • New Copy Del	Pick Manf. Model	•	Inventory Purchased 0 Used 0 Available 0	

Use the New, Copy and Del button to add additional replacement appliances.

### **VI.2 Heating Equipment**

Standard heating equipment can be added to the **Supply Library** via the **Heating Equipment** tab.

E Cuertu			
Supply Name LA WAP Supply Lib		References	
Hot Water Equipment (1) Insulation (0)	abor (0) Lighting (0) Miscellar	neous Supplies (0) 📔 Refrigera	ators (2)   Windows (0)   Other (0)
General Information Cooling Equipment (0)	Construction Materials/Hardware (0)	Doors (0) Health and Sat	ety Items (0) Heating Equipment (1)
			^
Description Electric central			
Manufacturer AO	Model 32 kBtu's	Supplier	
Units+ Each 🗸	\$/Unit \$1,500.00		
Comment			
EnergyDetails >>			
Equipment Type Heat Pump	Efficiency Units HSPF	•	
Fuel Type Electricity	Efficiency 100		
	Capacity (kBtuh) 32		
	Life (yr) 15		
		Inventory	
by Description		Purchase	ed 0 be
by Manufacturer		Used	
by Supplier	<u> </u>	Availal	
I( ( 1 ) ) ) → * of 1 N	ew Copy Del		

Attention is needed when entering heating system efficiency metrics under the **Energy/Details.** 

E Supply	
Supply Name LA WAP Supply Lib	References
Hot Water Equipment (1) Insulation (0) Labor (0) Lighting (0)	Miscellaneous Supplies (0) Refrigerators (2) Windows (0) Other (0)
General Information Cooling Equipment (1) Construction Materials/H	Hardware (0) Doors (0) Health and Safety Items (0) Heating Equipment (2)
Description Electric central	]
Manufacturer AO Model 24 kBtu's	Supplier 💽
Units+ Each - \$/Unit \$1,500.00	
Comment 2 ton	
EnergyDetails >>	
Equipment Type Furnace   Efficiency Units	HSPF 🔄
Fuel Type Electricity	9.9
Capacity (kBtuh)	24
Life (yr)	15
HEATING EQUIPMENT	Inventory
by Description	Purchased 10
by Manufacturer	
by Supplier	Available 0
I I I I I I I I I I I I I I I I I I I	

#### LOUISIANA WEATHERIZATION ASSISTANT - NEAT

E Supply				- C ×
Supply Name LA WAP Supply Lib		References		
Hot Water Equipment (1) Insulation (0) Labor (0) Lighting (0)	Miscellaneou	us Supplies (0)	Refrigerators (2)	Windows (0) Other (0)
General Information Cooling Equipment (1) Construction Materials/H	Hardware (0)	Doors (0) Hea	alth and Safety Items (0)	Heating Equipment (2)
Description Gas central				
Manufacturer AO Model 32 kBtu's		Supplier		•
Units+ Each • \$/Unit \$1,400.00				
Comment 3 ton 36kbtu			^	
			*	
EnergyDetails >>				
Equipment Type Furnace   Efficiency Units	Steady State	- i 🗲	]	
Fuel Type Natural Gas 💽 🕞 Efficiency	80	•		
Capacity (kBtuh)	36			
Life (yr)	15			
HEATING EQUIPMENT		-	Inventory	
by Description			Burchasod 0	-
by Manufacturer				
by Supplier 🗾 🔽				=
II Copy Del				

The heating system efficiency units used for data input are based upon the type of heating appliance (gas fired furnace, heat pump, etc.) and fuel type selected.

A gas furnace's **Efficiency Units** are **Steady State** or **AFUE**. Typically, the **Efficiency** of newer gas furnaces is measured at 80% or higher.

If a heating system is electric, the **Efficiency** is measured at 98-100%.

For unvented space heaters, the **Efficiency** is measured at 100%.

🗄 Supply
Supply Name LA WAP Supply Lib References
Hot Water Equipment (1)       Insulation (0)       Labor (0)       Lighting (0)       Miscellaneous Supplies (0)       Refrigerators (2)       Windows (0)       Other (0)         General Information       Cooling Equipment (1)       Construction Materials/Hardware (0)       Doors (0)       Health and Safety Items (0)       Heating Equipment (2)
Description Electric central
Manufacturer AO Model 24 kBtu's Supplier -
Units+ Each _ \$/Unit \$1,500.00
Comment
EnergyDetails >>
Equipment Type Furnace   Efficiency Units Steady State
Fuel Type Electricity  Efficiency 100
Capacity (kBtuh) 24
Life (yr) 15
HEATING EQUIPMENT
by Description
by Manufacturer Used 0
by Supplier Available 0
Id d 1 + H ++ of 2 New Copy Del

### VI.2.A Heat Pumps

Heat Pumps use two efficiency ratings:

**HSPF:** Heating Season Performance Factor (HSPF) measures the heating efficiency of Heat Pumps. The most efficient models have HSPF ratings of 13. Though most are between 8 and 11.

**SEER:** Seasonal Energy Efficiency Rating (SEER) measures the air conditioning efficiency of Heat Pumps. **Units must be at least 14 SEER**. The most efficient heat pumps on the market have ratings of greater than 20 SEER. A SEER with a rating of 15 to 17 is average.

The smallest heat pumps are either 18,000 British Thermal Units (BTU) (aka 1.5 ton) or 24,000 BTU (2.0 ton). The largest are 60,000 BTU (5.0 ton). The ratings refer to the amount of heat the units move per hour.

Heat pump sizing is critical. HVAC professionals use a Manual J load test and similar methods to determine the replacement heat pump.

**Moderate to High efficiency Heat Pumps are recommended** in Zones 3 and 2 respectively.

### Heat Pumps Efficiencies:

- Basic efficiency: Up to 15 SEER/8.5 HSPF
- Moderate efficiency: 15-17 SEER/8.5-9.5 HSPF
- High efficiency: 18 SEER/9.5 HSPF and higher

### VI.3 Cooling Equipment

Standard cooling equipment can be added to the **Supply Library** via the **Cooling Equipment** tab.

E Supply	l			- 0 X
Supply Name LA WAP Supply lib	7	References		
Hot Water Equipment (1) Insulation (3)	Labor (0) Lighting (0) M	fiscellaneous Supplies (0)   Re	efrigerators (2) Wind	lows (0) Other (0)
General Information Cooling Equipment (0)	Construction Materials/Hardw	are (0) Doors (0) Health a	und Safety Items (0)	Heating Equipment (2)
Description New Central Air				
Manufacturer	Model	Supplier	•	
Units+ Each 🗸	\$/Unit \$2,000.00			
Comment				
EnergyDetails >> Equipment Type Central Air Conditioner Efficiency Units SEER Efficiency EER Capacity (kBtuh) COP Life (yr) 15	<u>·</u>			
by Description by Manufacturer by Supplier	New Copy Del		entory urchased 0 Used 0 Available 0	

Attention is needed when entering cooling system efficiency metrics under the **Energy/Details.** 

Cooling Equipment system efficiency ratings are based upon the type of appliance (central air conditioner, heat pump, etc.)

**EER**: Energy Efficiency Rating (EER) values are often encountered when looking at smaller window AC units. EER is calculated using a <u>constant</u> outside temperature of 95 degrees, a <u>constant</u> inside temperature of 80 degrees, <u>and</u> a humidity level of 50%. No seasonal temperature changes are factored into a unit's EER rating.

**SEER:** An air conditioner's SEER rating (typically used in central air conditioners) is the ratio of the cooling output of an HVAC unit over a typical cooling season (measured in BTUs), divided by the energy consumed in Watt-Hours. It is the average over a cooling season and calculated using a <u>constant</u> indoor temperature and varying outdoor temperatures ranging from the 60s to over 100 degrees.

돌 Supply	
Supply Name LA WAP Supply Lib References	
Hot Water Equipment (1)       Insulation (0)       Labor (0)       Lighting (0)       Miscellaneous Supplies (0)       Refrigerators (2)         General Information       Cooling Equipment (0)       Construction Materials/Hardware (0)       Doors (0)       Health and Safety Item	Windows (0) Other (0) ns (0) Heating Equipment (2)
Description New Central Air	
Manufacturer Model Supplier	•
Units+ Each\$/Unit \$2,500.00	
Comment Heat Pump	
EnergyDetails >> Equipment Type Central Air Conditioner Efficiency Units COP • Efficiency 2 Capacity (kBtuh) 36 Life (yr) 15	
COOLING EQUIPMENT     Inventory       by Description     Inventory       by Manufacturer     Inventory       by Supplier     Inventory       Image: Cooling to the second	

**COP:** Coefficient of Performance (COP) is an expression of the efficiency of a heat pump. When calculating the COP for a heat pump, the heat output from the condenser is compared to the power supplied to the compressor. If the COP of heat pump used for air cooling has a COP = 2. This means that 2 kW of cooling power is achieved for each 1 kW of power consumed by the pump's compressor.

### VI.4 Data Collection Methods and Efficiency Conversions

The **preferred** data collection method for **accurate** energy audits generated for the WA software is the **exact** heating and cooling efficiency data from the manufacture's data plate.

For heating and cooling system efficiency conversions, the following formulas apply:

12,000 BTU in 1 ton COP = EER / 3.412 EER = COP x 3.412

EER = .875 x SEER SEER = EER / .875

**Note:** The only DOE approved Heating and Cooling Equipment Efficiencies Tables for use with Weatherization Assistant based on unit's age can be found in **Attachment F**.

DOE does **not** permit the use of these tables in lieu of actual efficiency testing of combustion appliances. Also, these tables may **only** be used to determine HSPF, SEER, COP, or EER values based on the year of manufacture and **only** on units older than 2008.

### Attachment F: Heating and Cooling Equipment Efficiencies

## **VII. Agency**

On the **WA Main Menu Splash Screen**, click on the **Agency** menu. The **Agency Information** tab will appear on the next screen.

WA 8.9.0.5		8
*	Agency	
	Clients	
	Energy Audits	
<u> </u>	Site Built (NEAT)	
0	Mobile Home (MHEA)	
Weatherization		
Assistance	Work Orders	
rrogram		

## **VII.1 Agency Information**

Enter your **Agency Name** and select your **State** under the **Agency Information** tab. These are the only required fields.

E Agency					- 0 🗙
Agency Name A	gency (5)			State US	
Agency Information	Contacts (0) Cost Centers	(0) Surveys (0) Clients (0	) Audits (0) Work Order	rs (0) Libraries (0) S	Status History
Agency Name	Louisiana		Address		
State	A •		City		
Agency Type		•	State	•	
Federal Grant#			Zip Code		
EIN			Phone Number		
Other ID Num			Fax Number		
Comment			EMail		
			Web Page URL		
			C Default agency Library: and Su UNcheck this b Agency record	y to associate with new upply records. Checki sox for all other Agence I can be the Default re	v Client, Work Order, ng this will automatically y records (ie. Only one cord).
AGENCY by Name	≥ → of 5 New	Copy Del	REPORT Select Report Preview Print		Clients

Any bordered box indicates a required field. Data must be entered in order to move on to the next screen.

E Agency						X
Agency Name	ouisiana			State US		
Agency Information	Contacts (1) Cost Center	rs (0) Surveys (0) Clients	(1) Audits (2) Work Or	ders (4)   Libraries (2)   S	Status History	
Agency Name	Louisiana		Address	100 North LA		
State	US 🔹			NOLA		
Agency Type		•	State	LA		
Federal Grant#			Zip Code	70123		
EIN			Phone Number	555-555-5555		
Other ID Num			Fax Number			
Comment			EMail			
			Web Page URL			
			Default age Library, and UNcheck th Agency rec	ncy to associate with nev Supply records. Checki is box for all other Agent ord can be the Default re	w Client, Work Order, ing this will automatically cy records (ie. Only one cord).	
AGENCY by Name	▶ ► of 4 New	Copy Del	REPORT       Select Report       Preview       Print		Clients	lected

Enter the Agency Address and Phone Number.

## **VII.2 Contacts**

Click on the tab marked **Contacts**. The following screen will appear:

Agency				
Agency Name Louisiana			State US	
Agency Information Contacts (2) Cost Centers (0) S	urveys (0) Client	ts (1) Audits (a	2) Work Orders (4) Libraries (2) Status Histor	/
Contact Name	User Nam	e ADMIN	Active 🔽 References	
Name Detail - First Adam MI Libra	Last Admin		Work Phone 555-55-555	5
Company LA WAP	Address		Cell Phone	
EIN	Unit Number		Pager	
Contractor T Title	City		Fax	
	State	-	Home Phone	
Supplier	Zip Code		Email	
			Web Page	
		Comment		
AGENCY CONTACT				
by Loor Name				
by Company			Change LogOn Group and Password Assign	ed
New Co	ppy Del			

Delete names in the **Contact Name** field (if any default names are listed) by clicking **Del** in the **Agency Contact** box at the bottom left.

Enter your name in the **Contact Name** field and a user name (i.e. first name initial, last name) in the **User Name** field by clicking **New** in the **Agency Contact** box at the bottom left of the screen.

Check the Auditor box below the Contact Name.

Enter your company/agency name in the **Company** name field (an acronym is recommended).

*Note:* It is not necessary to add contractors/crews.

### VII.3 Cost Centers and Surveys

The **Cost Centers** and **Survey** tabs are not necessary to complete an Energy Audit.

The **Cost Centers** tab can be used to track expenses for a weatherization grant.

You **may** enter the grant information in the fields found at the left hand of this screen. Click on the **New** button found at the bottom left of the screen to add a second or third funding source.

E Agency	
Agency Name Louisiana	State US
Agency Information Contacts (2) Cost Centers (0) Surveys (0) Clients (1) Audits (2	)   Work Orders (4)   Libraries (2)   Status History
Cost Center Name Active	☑ References
Cost Center Type	Actual Expected
Program Year -	Fotal Funds In
Description Total Non Wor	k Order Costs
Comment	vailble Funds
Total Wor	k Order Costs
	Balance
	Show Fund Transactions Show Work Order Costs
COST CENTER       by Cost Center Name       If (1) > H) >+ of [1]       New       Copy       Del	

### **VII.4 Clients**

Click on the **Client** tab to display existing client records.

Double click to view a record.

**Note:** You **may** create a new client record under this tab, but it is **preferable** to create a new client record under the **Client** button found on **WA Main Menu Splash Screen**. Creation of a new client record will be covered later in this manual.

Agency				- O X
Agency Name Louisiana			State US	
Agency Information Contacts (1) Cost Centers (0)	Surveys (0) Clients (1) Audits	(2) Work Orders	(2) Libraries (0) Status History	
<client id=""></client>	Client Name	Alt. Client ID	Status	D,
00002 Single story ranch	RanchOwner, Bob			
Record: I I I I I I I I Record:				•
Refresh List Read Only - Use for Sort/Find			Create New Client Record for t	his Agency

### **VII.5 Audits**

Click on the **Audits** tab to provide a list of Energy Audits that are currently existing in the WA database.

	Client ID>	1	Client Name	Alt C	<audit name=""></audit>	Type	Status	Date
00002 Single	e story ranch e story ranch	Ranch	Owner, Bob Owner, Bob		One-story ranch Audit (8)	NEAT	Recommendations Generated On	2/10/20

To access Client audit records, **left double click** on the **Client ID** you would like to select.

### VII.6 Work Orders

Click on the **Work Orders** tab to display work orders that have been previously created in the database.

Agency			F	-1	0	
Agency Name	ouisiana			State US		
Agency Information	Contacts (1) Co	st Centers (0)   Surveys (0)   Clients (	1) Audits (2) Work	Orders (2) Libraries (0)	Status History	
<0	lient ID>	(Work Order>	Contractor	Status	Date	Inspect S
00002 Single s 00002 Single s	story ranch	W0/00002 Single story ranch/1 W0/00002 Single story ranch/2		Work Order Created fro	m Aud 2/10/2012	
Record: 14	1	▶1 [▶ ±] of 2	•			•

To access an existing work order, **left double click** on the **Work Order** you would like to select.

**Note:** Although you **may** access the work orders from this page, it is **preferable** to access the work orders from the **Work Orders** button found on the **WA Main Menu Splash Screen**. Completion of work orders will be covered later in this manual.

### VII.7 Libraries

The **Libraries** tab provides a list of the **Setup** and **Supply Libraries** that are currently in the database.

Agency						
gency Name	Louisiana				Starts	1
Agency Information	on Contacts (1) Cost Centers (	) Surveys (0) Clients	s (1) Audits (2) 1	Work Orders (2)	Libraries (2) Status H	story
Setup Libraries	<ul> <li>Klibrary Name&gt;</li> <li>Setup LA WAP: Ubrary</li> </ul>		Description		Comment	Create 05/14/2020 09
		h Mihillaria		1		
	Refresh List Read Only - U	se for Sort/Find				_
Supply	<supply name=""></supply>		Description		Comment	Create
Libraries						05/14/2020 09:
	Record: H 4	▶ <b>▶I</b> ▶≋ of 1		•		,
	Refresh List Read Only - U	se for Sort/Find				

**Note**: Libraries **may** be accessed from this page; however, it is **preferable** to access the libraries from the **Setup Library** and **Supply Library** buttons found on the **WA Main Menu Splash Screen**.

To access existing libraries, **left double click** on the **Library Name** you would like to select.

\*\*Libraries must be setup in order to run an audit.\*\*

No other tabs are required to be filled under the **Agency** menu. You may now exit the **Agency** menu by clicking the **X** button at the top right hand of the page.



## **VIII. Clients**

E WA 8.9.0.5 USER: ADMIN	GROUP: Admin	×
*	Agency	
	Clients	
	Energy Audits	
<u> </u>	Site Built (NEAT)	
	Mobile Home (MHEA)	
Weatherization Assistance Program	Work Orders	
<database>: C:\Users\cdunn\De</database>	sktop\Test wa8-9sample.mdb	1
Description: Sample Backend D	Database	Data Link
Setup Library Supply Libra	ry Preferences Log On Help	ExitWA

Click on the Clients menu from the WA Main Menu Spash Screen.

## **VIII.1 Client Information**

The **Client Information** tab will be displayed.

E Client			
Ctent II: Client (22)	Client Name		Alt. Client ID
Client Information Status Energy Inc	dex Contacts (0) Audits (0) WorkOrders (0) Surveys (0)	Photos (0)	
Client ID	Alt. Client ID	—Occupants (number	of)
Agency Louisiana	✓ State US	Occupants	Native American 0
<setup library=""> Setup LA WAP Libra</setup>	ary -	Elderly 0	Children 0
Address	Unit Number	Disabled 0	
City	State Jip Code	Primary Language	e English
County	Other Geographic Identifier		
Dwelling			
Туре	Ownership		
Primary Heating Fuel	💽 High Energy Use 🗖		
Secondary Heating Fuel	→ High Energy Burden  □		

- Enter a unique **Client ID** (a number or name can be used). The **Client ID** should contain an abbreviation for the year, parish, agency, etc.
- Enter an (Alternative) Alt. Client ID (apartment name, building or lot number)
- Enter the full Address and County/Parish information of the client.
- Under **Dwelling**, select the **Type** of unit to be modeled from the drop-down menu.
- Enter the **Year Built** for compliance with EPA's RRP Rule and DOE lead policy.
- Enter the remaining information using the client's application, including **Dwelling Type** and **Number of Occupants.**

Client Client ID 00002 Single stor	ranch Client Name RanchOwner, Bob Alt. Client ID	
lient Information Status Energy	ndex   Contacts (2)   Audits (2)   WorkOrders (2)   Surveys (1)   Photos (0)	
Client ID 00002 Single stor Agency Louisiana <setup library=""> Setup LA WAP Li Address</setup>	rranch Alt. Client ID Occupants (number of) State US Occupants 4 Native American 0 Elderty 0 Children 0 Disabled 0	
City County Dwelling	State _ Zip Code Primary Language English _	ĉ
Type Site Built Primary Heating Fuel Secondary Heating Fuel	Ownership     Ownership     High Energy Use     High Energy Burden	
Previously Weatherized F Low Cost/No Cost F Account #1	Year Built 1951	
CLIENT       by Client ID       by Contact Name       by Alt. Client ID       Ii ↓ ↓ ↓ ↓ of [2]	Image: Select Report       Image: Select Report	_ 

## VIII.2 Status and Energy Index

The **Status** tab and **Energy Index** tabs pages are not used by auditors.

E Client	
Client ID Client (12	Client Name Alt. Client ID
Client Information Status Energy Index	Contacts (0) Audits (0) WorkOrders (0) Surveys (0) Photos (0)
Normalized Heating Energy Con	umption Index Calculator
<fuel costs=""> Dafau</fuel>	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:	•
Secondary Heating Fuel:	•
	Total Heating BTU/HDD/sqft
	□ High Energy Use (Read only
	Information tab to edit)

### VIII.3 Contacts

Click on the **Contacts** tab. This is where the applicant's contact information will be entered.

Client							
Client ID Client (22)	Alt. Client ID						
Client Information Status Energy Index Contacts (1) Audits (0) WorkOrders (0) Surveys (0) Photos (0)							
Full Name Home, LA			Work Phone				
Name Detail - First LA MI Las	t Home		Cell Phone				
Primary Applicant 🔽 🧲	Address		Pager				
Contact Type Applicant/Person of Record 🔄	Unit Number	Conv	Fax				
Company Name	City	Client	Home Phone				
Title	State	Addr	Email				
	Zip Code	1					
CLIENT CONTACT       by Contact Name       III       III       III       III       IIII	Comme	ent					

Check the **Primary Applicant** box and enter the applicant on record who applied for weatherization in the **Full Name** field.

Click on **Copy Client Address** to quickly transfer the information from the previous **Client Information** tab then enter additional information.

To create a second contact number or person click the **New** button and enter the information of the secondary contact person. Use the appropriate **Contact Type** from the drop-down menu. *For any secondary contact person, do NOT check the Primary Applicant check box.* 

by Contact Name
II I ▶ ► of 1 New Copy Del

### **VIII.4 Audits**

Click on the **Audits** tab. This page provides a list of Energy Audits that are currently in the database.

ient ID 00002 Single story ranch		Client Name RanchOwner, Bob	Alt Clien	t ID
ant Information   Status   Energy Index   Co	ontacts (2) Audit	s (2) WorkOrders (2) Surveys (1) Photos (0)		1
Audit Name>	Type	Status	Date	Created On
One-story ranch	NEAT	Recommendations Generated On	2/10/2012	
Audit (8)	[NEAT			05/14/2020 09:31:35
$\mathbf{\hat{n}}$				
ecord: 1 ) ) ) ) **	of 2	<u>.                                    </u>		
ecord: 14 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	of 2	<u> </u>		
ecord: 14 4 1 1 + H > * Refresh List Read Only-Use for Sort/F	of 2	<u>.</u>		
ecord: 1 + + + + + + + + + + + + + + + + + +	of 2	Create New Site Bu	iit Create	e New Mobile Home

To access an Audit, left double click on the Audit Name you would like to select.

\*\*Do <u>NOT</u> create new audits from this page. When you begin the audit from one of these buttons, all client information is <u>NOT</u> attached to the audit. And starting a new audit from this page may overwrite existing audits.

No other tabs are required to be filled out under **Client** menu. You may now exit out of the **Client** menu by clicking the **X** button at the top right hand of the page.



## IX. Energy Audits

Next click on the Site Built (NEAT) button on the WA Main Menu Splash Screen.

🔢 WA 8.9.0.5		8
*	Agency	
	Clients	
	Energy Audits	
<u> </u>	Site Built (NEAT)	
0	Mobile Home (MHEA)	
Weatherization Assistance Program	Work Orders	
<database>: C:\ProgramData\Weat</database>	herization Assistant 8-9\wa8-9.mdb	Data List
Description: Default Backend Data	base File	Data Link
Setup Library Supply Library	Preferences	telp Exit WA

### **IX.1 Audit Information**

E NEAT Audit	
Audit Name Audit (8) Client ID 00002 Single story rar Client Na	me RanchOwner, Bob Alt. Client ID
Audit Information Status Shell Heating (0) Cooling (0) Ducts/Infitration Baseloads Health & Se	afety   Itemized Costs (0)   Utility Bills (0)   Photos (0)   Measures (0)
Audit Name Audit (8) Conditioned Storie Client ID 00002 Single story ranch Conditioned Storie Client ID 00002 Single story ranch Contract Contract (sq the second stories) Contract (sq the second s	Run Audit Last Run On Not Run at Economics Summary Measures Recommended Total Initial Cost (\$) Cumulative SIR
AUDIT       by Audit Name       by Client Name       by Client Name       by Alternate Client ID       It       It       It	REPORT           Select Report         Recommended Measures           Preview         Print         Snapshot File

Any bordered box indicates a required field. Data must be entered in order to move on to the next screen.

Enter the **Audit Information** in each required field:

- Audit Name: address, name, audit number (Client ID) or Alternative Client ID.
- Setup Library: Using the drop-down menu, select the setup library you wish to use on this dwelling unit.
- Fuel Cost Library: Using the drop-down menu, select the fuel prices for the location.
- **Supply Library**: Using the drop-down menu, select the supply library that contains the material and labor cost you wish to use on this dwelling unit.
- Weather File: Using the drop-down menu, select the city that is closest to the unit you will be modeling.
- Enter the number of floors inside the thermal and air barrier of the home in the required data field for the number of **Conditioned Stories** (i.e. one stories, two stories etc.) and **Floor Area (sq. ft.)** fields.

### IX.2 Status

The **Status** tab is not used by Auditors.

E NEAI AUDIT								
Audit Name Audit (8	3)		Client ID 00002 Single s	tory rar Client	Nome Rar	chOwner, Bob	Alt Client I	
Audit Information Status	Shell Heatin	g (0) Cooling (0) C	Ducts/Infiltration   Basel	ads Health &	Safety   Ite	mized Costs (0) Utility	Bills (0) Photos (0)	Measures (0)
合	Completed	Current Status	Date	Changed	By	Comment	Edit History	Run Audit
Audit (Audit (8) )							Edd H	Last Run On Not Run 61

### IX.3 Shell

The next sections are data entry intensive and will require the specific information about the house, structure, windows, doors, and measurements as taken from the Auditor out in the field.

<u>Remember, if at any time you need help on how to complete a field, press the F1</u> <u>key for the HELP screen.</u>

### IX.3.A Shell (Walls Sub Tab)

Click on the Shell tab to enter Wall Codes under the Walls sub tab.

**LA WAP Policy:** Auditors must **physically** identify insulation levels in **all** exterior (shell) walls. Wall cavities **must** be insulated to **R-13**, or maximum structurally allowable, if an SIR of 1.0 or greater is generated in the **Recommended Measure Report.** 

E NEAT Audit	- D X
Audit Name Audit (8) Client ID 00002 Single story rar Client Name RanchOwner, Bob 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)
Walls (0)       Windows (0)       Doors (0)       Unfinished Attics (0)       Foundations (0)         Wall Code       W1       Existing Insulation         Wall Type       Platform Frame       Platform Frame         Value       13	Run Audit Last Run On Not Run at
Stud Size 2 x 4     •       Exterior Type     Wood       Exposed To     Outside (Amblent)       Orientation     West       Gross Area (sq ft)     280       Measure #     1	
Windows on this Wall (0) Doors on this Wall (0)	
WALL	

Use **Wall Codes** that make sense (i.e. W1, N2). Next, choose the **Wall Type.** If you select either Balloon Frame or Platform Frame, then a **Stud Size** field will appear that must be filled out.

E NEAT Audit		- D X
Audit Name Audit (8)	Client ID 00002 Single story rar Client Name RanchOwner, Bob 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)
Walls (0) Windows (0) Doors (0) Unfinished Attics (0)	Finished Attics (0) Foundations (0)	Run Audit
Wall Code W1 Wall Type Platform Frame • Stud Size 2×4 • Exterior Type Wood • Exposed To Outside (Amb@nt) • Orientation West • Gross Area (sq ft) 280 Measure # 1	Existing Insulation Type Blown Cellulose • R Value 13 Added Insulation Type None •	Last Run On Not Run at
Windows on this Wall (0) Doors on this Wall (0)	y Del	

Choose the Exterior Type from the drop-down menu. Next, choose an Exposed To option from the drop-down menu. (Use the F1 key for a description of each option in the list)

Enter wall **Orientation** (N, E, S or W).

Enter the **Gross Area in square feet**. You must enter the square footage of each and all exterior (shell) walls. (Square footage is Length x Width; ex. 10 foot wall with 8 feet high =  $10 \times 8 = 80 \text{ sq. ft.}$ )

Enter the **Measure #**. (Typically, measures go in the order they are entered. For example, the first wall you enter will have a measure number of 1. The second wall will have a measure number of 2 and so on.

If there is **Existing Insulation**, auditors are required to select the insulation **Type** and input the **R- Value** under this section. Use the comment box at the bottom right to discuss the insulation or anything unique about this set of data.

Use the **New** or **Copy** button in the **Wall** control box at the bottom left corner to enter additional shell walls.

WALL	
by Wall Code	
I I I I I I I I I I I I I I I I I I I	New Copy Del
L	

When finished with all wall entries, place your mouse in the gray area above the comment box and **Right Click**. Select the pop-up box **Subform Datasheet**.

	Subform Datasheet
Comment	

The wall MS database view will open with all the walls entered. Here you can check for wall accuracy and make changes. Simply click on the box and make the corrections. Use the scroll bar at the bottom of the walls window to access all fields.

Wall	Walls (8) Windows (11) Doors (4) Unfinished Attics (1) Finished Attics (0) Foundations (1)									
	Code	Wall Type	Stud Size	Exterior	Exposed To	Orientation	(sq ft)	Measure #	Exist Insl.	Exist R
	W1	Platform Fram	2×4	Brick o	Outside (/	North 💌	336	1	Fiberglass Batt	13
	W2	Platform Fram	2 x 4	Brick o	Buffered §	North		1	Fiberglass Batt	13
	W3	Platform Fram	2×4	Brick o	Buffered {	South		1	Fiberglass Batt	13
	W4	Platform Fram	2 x 4	Brick o	Buffered (	East		1	Fiberglass Batt	13
	W5	Platform Fram	2×4	Brick o	Outside (/	West		1	Fiberglass Batt	13
	W6	Platform Fram	2 x 4	Brick o	Outside (4	East	80	1	Fiberglass Batt	13
	W7	Platform Fram	2 x 4	Brick o	Outside (4	South	144	1	Fiberglass Batt	13
	W8	Platform Fram	2×4	Brick o	Outside (4	East	208	1	Fiberglass Batt	13
*			2 x 4							

Record: I	1 <b>)       *</b> of 1	•	•
		1	

To exit the wall MS database **Right Click** and select the pop-up box **Subform Datasheet**.

### IX.3.B Shell (Windows Sub Tab)

Under the **Shell** tab click on the **Windows** sub tab to begin entering your **Window Codes**.

<u>Universal Policy</u>: All window replacements must be <u>correctly</u> modeled with the NEAT Audit and have a **minimum** 1.0 SIR to be replaced as an energy conservation measure (ECM).

E NEAT Audit	
Audit Name One-story ranch Clien	t ID 00002 Single story rar Client Name RanchOwner, Bob Alt. Client ID
Audit Information   Status Shell   Heating (1)   Cooling (1)   Ducts	/Infiltration   Baseloads   Health & Safety   Itemized Costs (5)   Utility Bills (0)   Photos (0)   Measures (12)
Walls (4)       Windows (3)       Doors (2)       Unfinished Attics (1)       Finished         Window Code       Window Type       Awning       •         FrameType       Wood or Vinyl       •         Glazing Type       Single with Metal Storm       •         Interior Shading (%)       D       •         Leakiness       Medium       •         Width (in)       24       Wall Code       WL1-N         Height (in)       48       Number 4	Additional Cost
WINDOW       by Window Code       If I       If I       If I       If I         I         I	Comment

Press the F1 key for the HELP screen.

Use **Window Codes** that make sense (i.e. **1WN** is the first window on the north wall.)

Use the drop-down menus under **Window Code** to select your **Window Type**, **Frame Type**, **Glazing Type**, and **Interior Shading** (ex. Blinds, Drapes, etc.)

Fill in the Exterior Shading (%) field by using the following rule of thumb:

Enter the <u>approximate</u> percentage of window area frequently shaded by eaves (typically 25%), porches (typically 100%), or other physical exterior barriers such as trees (varying percentage).

Enter and select the window **Leakiness** that fits the window description (i.e. Very Tight, Tight, Medium, Loose, or Very Loose).

- Degrade the leakiness description one level if the window panes themselves have become significantly loose in their mounting and/or a small (2 to 9 sq. in.) piece of glass is broken out.
- Degrade the leakiness two levels if there is a larger hole (9 to 25 sq. in.) in a window pane and/or an entire pane is missing.
- Specify the window to be Very Loose if more than 25 sq. in. of glass is missing in the window.
- Upgrade the leakiness description one level if an installed storm window is in greater than or equal to average condition.

<u>Window Type</u>	Typical Leakiness Classification
Fixed	Very Tight
Casement	Very Tight
Single- / Double-hung (vertical slider) Non-Woo	d Tight
Single- / Double-hung (vertical slider) Wood	Medium
Horizontal slider	Medium
Jalousie	Loose
Awning and hopper (casement design)	Very Tight
Awning and hopper windows (awning/jalousie o	design) Medium

Typical leakiness categories by window type are as follows:

Complete the **Average Size** fields. Enter the <u>actual</u> size measured for width and height of window in **inches**. Next, complete the **Number on this Wall** section. Select the <u>specific</u> wall code where each window is located.

Repeat for each window.

It is preferred to enter each window <u>individually</u>, since it is rare that each one is identical in size, leakiness, or condition, etc.

#### LOUISIANA WEATHERIZATION ASSISTANT - NEAT

E NEAT Audit		
Audit Name One-story ranch Client ID 00002	Single story rar Client Name RanchOwner, Bob Alt. Client ID	
Audit Information Status Shell Heating (1) Cooling (1) Ducts/Infiltration	Baseloads Health & Safety Itemized Costs (5) Utility Bills (0) Photos (0) Me	asures (12)
Walls (4) Windows (3) Doors (2) Unfinished Attics (1) Finished Attics (0	)] Foundations (1)	Run Audit
Window Code WDI	Retrofit Options Evaluate All	ast Run On 6/4/2020
FrameType Wood or Vinyl	-Additional Cost	at 1:59 PM
Glazing Type Single with Metal Storm	Weatherization (\$/window)	
Interior Shading Drapes	Replacement (\$/window)	
Exterior Shading (%) 0	Low E (\$/window)	
Leakiness Medium	Storm (\$/window)	

To model windows for an Energy Conservation Measure (ECM), go to the **Retrofit Option**. In the drop-down menu, select **Evaluate All** to evaluate the window as an ECM. (It is <u>recommended</u> that you select **Evaluate All** under **Retrofit Options** to allow the Audit Program to select the **best** recommended measure.)

To model windows for an Incidental Repair (IR), click the **Itemized Cost** tab and check the **Include in SIR** box. No energy savings will be entered for IR repairs. The cumulative building SIR must be a minimum of 1.0 or greater in order to complete the Repair measures.

To model general window air sealing or a broken window pane, click the **Duct/Infiltration** tab then add the cost of the pane or air sealing into the total cost.

Use the **New** or **Copy** button at the bottom left to enter additional Windows. Use **Copy** to enter similar windows.



#### LOUISIANA WEATHERIZATION ASSISTANT - NEAT

### IX.3.C Shell (Doors Sub Tab)

E NEAT Audit		- D ×
Audit Name One-story ranch C	Client ID 00002 Single story rar Client Name RanchOwner, Bob Alt. Client	
Audit Information Status Shell Heating (1) Cooling (1) D	Ducts/Infiltration Baseloads Health & Safety I Itemized Costs (5) Utility Bills (0) Photos (0	) Measures (12)
Walls (4) Windows (3) Doors (2) Unfinished Attics (1) Fin	nished Attics (0) Foundations (1)	Dup Audit
Door Code DR1	Replacement Door Required	Last Run On 6/4/2020 at
Area (sq ft)	Additional Cost (\$/door)	
Storm Door Condition Adequate	/all	
DOOR       by Door Code       Image: A state of the state of	Comment	

### Remember to press the F1 key for HELP screen.

Use Door Codes that make sense (i.e. 1DW is the first door on the west wall.)

Select the **Door Type** from the drop-down menu. Indicate the **Area of the door in square feet** (a standard door is 20 sq. ft.).

Select the **Storm Door Condition** (or none if none exists) and applicable **Leakiness** (Tight, Medium, or Loose).

Door characteristics for leakiness determination are as follows:

- Tight doors will have the door and frame squared, no warping, functioning weather stripping in good condition around the door, a good seal at the threshold, no holes or structural damage, and latches that keep the door securely shut. If windows exist in the door, they will be fixed and well-sealed.
- Doors with medium leakiness will have some characteristics of loose doors, but retain substantial integrity. However, they would likely benefit from air sealing efforts.

• Loose doors will exhibit many, if not most, of the following problems: door and/or frame out of square, warping, weather stripping missing or severely damaged, no seal at the threshold, holes or significant structural damage, and latches that do not keep the door securely shut.

In this section, use the **Wall Code** to indicate which wall this door is located on and the number of doors on this same wall.

**Note:** Always input data in the correct units called for by the software (i.e. door **Area** is in sq. feet and door **Optional Dimensions** is in inches.)

Use the **New** or **Copy** button to enter additional Doors. Use **Copy** to enter similar doors.

DOOD	
by Door Code	Comment
I I I I I I I I I I I I I I I I I I I	
	1

### **Universal Policy:** Window and Door Replacement

Window and door replacement(s) **must** first be modeled and treated as an ECM(s) if cost justified. Window and door replacements **shall not** be included in the air sealing ECM. Window and door replacements are allowable as IRs to preserve the integrity of the associated ECM(s) as per WPN 19-5. All door repair cost must be entered into the WA (NEAT/MHEA) energy audit.

Door replacement as an energy conservation measure (ECM) option is provided within the NEAT/MHEA energy audit tool. If windows and doors are properly model and rank in the Recommended Measures Report with an SIR of 1.0 or greater, you may proceed with the replacement as an ECM.

Major factors for ranking window and door replacements in the energy audit are: leakiness, type, orientation, and installation cost.

Door replacement should be considered when the door slab is damaged beyond repair and to the point of allowing air infiltration through the door slab itself.

Clear photographic & written documentation of the defective items or aspects of windows and doors should be obtained and placed in the client file to validate repair/replacement actions.

Visual appearance (aesthetics) or customer desire are **not** valid reasons to authorize window or door replacement.

Components of the door which clearly allow for air infiltration, such as weather stripping, thresholds, hinges, striker plates, and broken door frames, should be considered as air infiltration measures. Air infiltration related repair measures include weather-stripping, patching holes in the door (like a wall patch), adjusting the door/strike plate/deadbolt to allow for proper closure/sealing, etc. All door air infiltration cost should be included in the air infiltration tab cost field in NEAT/MHEA.

Incidental repair measures related to windows and doors are only allowable to preserve the integrity of an associated energy conservation measure (ECM) and must meet the guidance outlaid in WPN 19-5. IR cost(s) must be included in the whole house SIR calculation, and the whole house SIR must have a SIR of 1.0 or greater.

#### LOUISIANA WEATHERIZATION ASSISTANT - NEAT

### IX.3.D Shell (Attics Sub Tabs)

E NEAT Audit		X
Audit Name One-story ranch	Client ID 00002 Single story rar Client Name RanchOwner, Bob Alt. Client ID	
Audit Information Status Shell Heating (1) Cooling (1	) ] Ducts/Infiltration ] Baseloads ] Health & Safety   Itemized Costs (5) ] Utility Bills (0)   Photos (0) ] Measures (	[11]
Walls (4)       Windows (3)       Doors (2)       Unfinished Attics (1)         Attic Code	Finished Attics (0) Foundations (1)   sting Insulation Added Insulation   Type Image: still st	ıdıt I On 20
UNFINISHED ATTIC by Attic Code	y Del	

<u>Remember use the **F1** key for **HELP** screen.</u> Use the following for both Unfinished and Finished attics.

Use Attic Codes that make sense (i.e. 1UA is the first attic that is unfinished)

Use the drop-down menus under **Attic Code** to select the **Attic Type** (floored, unfloored, etc.)

Indicate the Joist Spacing in inches and attic Area (sq. ft.)

If there is **Existing Insulation**, select the insulation **Type** from the drop-down menu and input its **Depth in inches** in the required field.

If you intend to **Add Insulation**, use the drop-down menus to complete the **Added Insulation** section with the **Measure #** and select the insulation **Type**.

**Do not specify** the **Added R Value** or **Max Depth** of the attic insulation as NEAT/MHEA will select the most cost effective insulation levels based on insulation type and cost of material and labor. By letting NEAT choose the added insulation levels, NEAT may allow measures with previously lower SIRs to be re-evaluated, which could result in an increase in total number of ECMs installed.
If attic insulation individual SIR is greater than 1.0 (i.e. a SIR > 3), the auditor may specify to increase the attic insulation R levels in NEAT/MHEA. The final attic insulation measure will still need to have an individual SIR > 1.0 along with the unit's cumulative SIR still maintaining a SIR > 1.0. Keep in mind this may effect or remove measures with lower SIRs that were in the audit's **Recommended Measures Report.** 

Use **Comments** to further describe the Attic, if necessary.

Use the **New** or **Copy** button to enter additional attics.

by Attic Code	-
II I 2 P II P* of 2 New Copy Del	

Remember the same functions can be used for both **Unfinished** and **Finished Attics**.

E NEAT Audit		- I X
Audit Name One-story ranch Client ID 00002 Single story ran C	lient Name RanchOwner, Bob Alt. Client IE	
Audit Information   Status Shell   Heating (1)   Cooling (1)   Dues/Infination   Baseloads   Heating (1)   Cooling	alth & Safety $ $ Itemized Costs (5) $ $ Utility Bills (0) $ $ Photos (0)	Measures (12)
Walls (4)       Windows (3)       Doors (2)       Unfinished Attics (1)       Finished Attics (0)       Foundations (1)         Attic Code	Added Insulation Measure # Type Added R Value or Max. Depth (in) Additional Cost (\$)	Run Audit Last Run On 6/4/2020 at 1:59 PM

### IX.3.E Shell (Foundations Sub Tab)

E NEAT Audit			
Audit Name One-story ranch	Client ID 00002 Single story rar Clie	ent Name RanchOwner, Bob	Alt. Client ID
Audit Information Status Shell Heating (2) Cooling (1)	Ducts/Infiltration Baseloads Healt	h & Safety Itemized Costs (7) Utility Bills (0	) Photos (0) Measures (15)
Walls (4) Windows (3) Doors (2) Unfinished At cs (1) F	nished Attics (0) Foundations (2)		Run Audit
Foundation Code F1 Foundation Type	on Conditioned	Measure # 1	Last Run On 6/5/2020
Floor Area (sq ft) 1300 Adde Existing Insulation R Value 0	on Conditioned ented Non Conditioned nintentionally Conditioned ninsulated Slab sulated Slab	•	10:52 AM
_ Sill	kposed Floor		
Floor Joist Size (in) Added	nsulation Type	•	
Perimeter to Insulate (ft)	ditional Cost (\$)		
- Foundation Wall			
Height (ft) 8	Perimeter (ft) 152 Ad	ded Insulation Type	
Height Exposed (%) 25 Existing Ins	lation R Value 0	Additional Cost (\$)	
FOUNDATION       by Foundation Code       If     I       If     I	Comment Del		

### Remember use the F1 key for HELP screen.

All buildings **must** have **Foundation** details entered into the audit.

Use Foundation and Crawl Space Codes that make sense (i.e. F1 and C1)

Boxes will disappear based on which **Foundation Type** is selected.

E NEAT Audit	
Audit Name One-story ranch Client ID 00002 Single story ran Client Name RanchOwner, Bob Alt. Client ID	
Audit Information Status Shell Heating (2) Cooling (1) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (7) Utility Bills (0) Photos (0) Me	asures (15)
Walls (4) Windows (3) Doors (2) Unfinished Aftes (1) Finished Attics (0) Foundations (2)	Run Audit
Foundation Code       F1       Foundation Type       Non Conditioned       Measure # 1       Image: Conditioned         Floor       Non Conditioned       Non Conditioned       Image:	Last Run On 6/5/2020 at 10:52 AM
Existing Insulation R Value 0 Uninsulated Slab Insulated Slab	
Sill	
Floor Joist Size (in) Added Insulation Type	
Perimeter to Insulate (ff) Additional Cost (\$)	
Foundation Wall	
Height (ft) 8 Perimeter (ft) 152 Added Insulation Type	
Height Exposed (%) 25 Existing Insulation R Value Additional Cost (\$)	
FOUNDATION     Comment       by Foundation Code     •       if (1) + H + of 2     New Copy Del	

**Foundation Walls** or **Floors** that define the heating envelope must be insulated, if possible, when the measure meets a minimum SIR of 1.0 or greater.

**LA WAP Policy:** Crawl spaces with >36" average height to ground, no insect infestations, and correctable ground moisture will be assessed for ground moisture barrier (DOE Louisiana Approved Variance).

The interior side of exterior walls of **Unintentionally Conditioned** Crawl Spaces must be insulated, if possible when the measure meets a minimum SIR of 1.0 or greater.

**Box Sills** and inaccessible Crawl Spaces must be insulated, if possible when the measure meets a minimum SIR of 1.0 or greater.

Do not deactivate floor insulation in the Setup Libraries.

Floor Insulation **cannot** be modeled as an **Itemized Cost**.

Use **Comments** to further describe the foundation or any unique factors, if necessary.

Use the **New** or **Copy** button to enter additional comments or similar foundations.



# IX.4 Heating

EE NEAT Audit			
Audit Name Audit (8)	Client ID 00002 Single story rar Client	Name RanchOwner, Bob	Alt. Client ID
Audit Information Status Shell Heating (0) Cooling (0)	Ducts/Infiltration Baseloads Health 8	Safety   Itemized Costs (0)   Utility Bills (0)	Photos (0) Measures (0)
System Code	Primary Syst Manufacturer	m 肩	Run Audit Last Run On
Required Heating System Details	liminate with Primary System Replacer	ient 🕅	ot
No Heating System Details Yet			
Optional Heating System     Operational Tests     Verticities       HEATING SYSTEM       by System Code       Image: A state of the system of the system Copy o	nt Furnace Boiler Components Component	s Inspections Thermostat	

#### Remember use the F1 key for HELP screen.

Follow the Louisiana Health and Safety Plan and DOE's WPN 17-7 Attachment A for Additional Health and Safety Guidance Related to Heating Systems for the following specific topics:

- Budget Category Decisions
- Code Compliance and Inspection
- Electric Space Heaters
- Fireplaces Special Considerations
- Manufactured Homes Special Considerations (MHEA)

- Masonry Chimneys
- Solid Fuel-Fired Heaters
- Unvented Gas- and Liquid-Fueled Space Heaters
- Vented Gas- and Liquid-Fueled Space Heaters

E NEAT Audit		
Audit Name One-story ranch	Client ID 00002 Single story rar Client Name	RanchOwner, Bob Alt. Client ID
Audit Information Status Shell Heating (2) Cooling (1	) Ducts/Infiltration Baseloads Health & Safety	ttemized Costs (5) Utility Bills (0) Photos (0) Measures (12)
System Code HS2 H Equipment Type Forced Air Furnace Fuel Natural Gas Location Unconditioned Space	eat Supplied (%) 100 Primary System 🔽 Manufacturer Model	Uninsulated Supply Ducts (0) Run Audit Last Run On 6/4/2020 at 1:59 PM
GAS FURNACE DETAILS Input Units kBtu per Hour  Input Rating 100 Output Capacity 60 (kBtu/hr) Steady State Efficiency 60 (%) Condition Corr (but working)  Yrogrammable Thermostat	Automatic Vent Damper Present IT Evaluate IT Pilot Light/IID IID IT Pilot Light I Power Burner IT Power Sumer I Power Power I Power	t System uate All ral Gas Standard High Efficiency 81 92 \$1,000.00 \$1,500.00 \$
Optional Heating System Details  HEATING SYSTEM by System Code  IN  2 New Copy	Vent Furnace Boiler Components Components	Inspections

### Use System Codes that make sense (i.e. HS1, HS2)

First, model heating systems for replacement as an ECM in the **Heating** tab by evaluating a replacement with a new heating system unit.

If there is more than one heater present, make sure that the **Primary System** box is only checked for **one** heating system.

The number and type of boxes to fill in will change once the Heating System **Equipment Type** and **Fuel** type are selected.

When multiple heating systems are present, the **Heat Supplied (%)** field for each heating unit **must** add up to a total of 100% when all heating systems are combined. (*i.e.* HS1 50% + HS2 50% = 100%)

To evaluate **Heating Systems** as an ECM, run the energy audit with **Evaluate All** enabled in the software's **Heating** tab.

When modeling a **Gas Forced Air** system for replacement, model only the replacement unit in the **Replacement System**.

Under **Replacement System**, select **Evaluate All** from the **Options** drop-down menu and enter the new heating system's actual **AFUE** and **Cost** of the replacement system.

In the event that replacement of a heating system(s) results in a SIR <1.0 (less than one), model the replacement as a Health & Safety in the heating tab. Select **Replacement with Heat Pump** *(or Electric Resistance)* Mandatory. <u>Uncheck</u> the **Include in SIR** box to allow the SIR calculations for the rest of the measures to be evaluated with the replacement system in place.

When modeling an **Electric Forced Air** heating system for replacement with a **Heat Pump**, enter **HSPF** and all **Costs** for an entire replacement unit here. A **Heat Pump** must also be modeled under **Heating** and **Cooling** tabs of the NEAT Audit.

Equipment Type Fixed Electric Fuel Electricity Location Heated Spa	c Resistance	Manufacturer     Model			Last Run On Not Run at
Required Heating System Deta	ils				
ELECTRIC RESISTANCE H Output Units KW Output Capacity 1.5	EATING SYSTEM D	ETAILS Peplacement S Options Evaluat HSP Labor Cost ( Material Cost (	Aystem       Selection       Si		
Optional Heating System Details	Operational Tests	Vent Furnace Tests Components	Boiler Inspections	Thermostat	
INCALING STSTEM		Comment			

Click on the **Cooling** tab.

**Heat Pump** replacement for a primary heating and cooling system must be modeled under the **Cooling** tab to link both units in the NEAT audit. Model the Air Conditioning unit by entering the required data on the existing cooling unit.



Navigate back to the **Heating** tab.

E NEAT Audit			- C ×
Audit Name One-story ranch	Client ID 00002 Single story ra	ar Client Name RanchOwner, Bob	Alt. Client ID
Audit Information   Status   Shell Heating (1)   Cooling (1	) Ducts/Infiltration Baseloads	Health & Safety   Itemized Costs (5)   Utility Bills (0)	Photos (0) Heasures (11)
System Code HS1 H Equipment Type Forced Air Furnace Fuel Natural Gas Location Heated Space	eat Supplied (%) 100 Prim Manufacturer Model	nary System 🔽 Uninsulated Supply Ducts (0)	Run Audit Last Run On 6/2/2020 at 9:03 AM
GAS FURNACE DETAILS Input Units kBtu per Hour Input Rating 100 Output Capacity 80 (kBtu/hr) Steady State Efficiency 74 (%) Condition Fair Programmable Thermostat	Automatic Vent Damper Present 「 Evaluate 「 Pilot Light/IID IID 「 Pilot Light 「 On in Summer 「 Power Burner 「	Replacement System       Options       Evaluate All       Fuel       Natural Gas       Standard       High Efficiency       System AFUE       B1       32       Labor Cost (\$)       \$1.000.00       \$1,600.00	
Optional Heating System     Operational Tests       HEATING SYSTEM       by System Code       If ( 1 ) > 1 ) > 1 → 1 ( New Copy)	Vent Furnace Components Co	Boiler Inspections Thermostat	

Additional information on modeling NEAT for Heating and Cooling System replacements:

- To evaluate Heating Systems and/or Cooling Systems for an ECM replacement in NEAT, auditors must verify that correct and accurate cost and efficiency data have been entered for both the furnaces and A/C units.
- In NEAT only, when inputting the data into the **Heating** tab and selecting **Fuel** type **Electricity**, the **Programmable Thermostat** check box in **Heating System Details** disappears and is no longer an option.

**LA WAP Policy**: On heating systems that use electricity for fuel, the **only** option for replacing the existing <u>mercury</u> thermostat is for **Health and Safety** reasons.

• Data entry errors in the energy audit can result in a satisfactory unit being replaced or an unsatisfactory unit not being identified for replacement.

**Note:** One error in the input data of BTU consumption, year manufactured, and/or SEER value will cause the replacement equipment's SIR to be skewed in the audit, and the audit invalid to DOE and Louisiana rules.

- Attention and accuracy are needed when entering the following energy audit efficiency data:
  - The BTU input and output size of the existing unit.
  - The BTU of the replacement unit.
  - The SEER of the existing unit. (Use the most accurate SEER that can be determined by using the year manufactured.)
  - The SEER of the replacement unit. (Verify the SEER of the replacement unit.)
  - Do not use the manufactured year as the only form of appliance efficiency data.
  - The pricing and data of the replacement unit in the energy audit library.
- When replacing a heating and cooling system for an ECM, the cost can be shared across both **Heating** and **Cooling** tabs in NEAT in three different ways for software modeling.

**Example Scenario:** You are replacing a heating, cooling and blower unit, the actual furnace costs \$1000, the AC costs \$1500, and the blower costs \$500 for a total of \$3000.

1. The blower total cost of \$500 could be added to the **Heating** Tab, or

2. The blower total cost of \$500 could be added to the **Other** cost under **HVAC Systems - Replace AC** measure cost in the **Setup Library**, or

*3. The blower cost can be split between both the heating and cooling cost i.e. \$250 to each.* 

# **IX.5** Cooling

EE NEAT Audit	
Audit Name One-story ranch Client I	D 00002 Single story rar Client Name RanchOwner, Bob Alt. Client ID
Audit Information   Status   Shell   Heating (1) Cooling (1)   Ducts/In	nfiltration Baseloads Health & Safety Itemized Costs (5) Utility Bills (0) Photos (0) Measures (11)
AC Code	Required Retrofits Replacement Required II Tune-up Mandatory II 9:03 AM
by AC Code       IM       2       Mew       Copy       Del	Comment

Press the F1 key for the HELP screen.

**LA WAP Policy**: Use **only** SEER for cooling system efficiencies data when using NEAT. Do not use the year manufactured.

### Attachment F: Heating and Cooling Equipment Efficiencies

Do **not** use the **Year Manufactured** for cooling efficiency due to NEAT being designed in the 1990s. Flawed energy audits and inaccurate SIRs may occur if a more current year is used than the design year of NEAT. *This is applicable to cooling efficiency in NEAT only*.

Once you select **Equipment Type**, the **Replacement Required** and **Tune-Up Mandatory** check boxes will be available under **Required Retrofits**.

Allow NEAT to evaluate either **Replacement Required** or **Tune-up Mandatory** on cooling systems. Cooling system replacement and tune-up cost are located in the **Setup Library** under the **Library Measures** tab.

An **Include in SIR** box will appear when either of the Required Retrofits options are selected.

**LA WAP Policy**: In the event that replacement of a cooling system(s) results in a SIR <1.0 (less than one) and "at risk" occupants (under 5 years of age, elderly, or documented medical condition) are present, model the replacement as a Health & Safety in the cooling tab. <u>Uncheck</u> the **Include in SIR** box to allow the SIR calculations for the rest of the measures to be evaluated with the replacement system in place.

At the bottom left of the page, click **New** or **Copy** to add additional cooling sources, and comments may be added in the **Comment** box.



<u>Universal Policy</u>: When addressing a system that utilizes a compressed refrigerant cycle to provide heating or cooling (not applicable to evaporative coolers), the following derating formula is the only approved calculation that may be used.

#### Degraded Efficiency = (Base EFF) \* .99<sup>age</sup>

- Base EFF = Typical efficiency of Pre-Retrofit equipment when new (Seasonal Energy Efficiency Ratio (SEER), Energy Efficiency Ratio (EER), or Heating Seasonal Performance Factor (HSPF))
- **Age** = Age of equipment in years

Derating of combustion appliances in lieu of testing for combustion efficiency is **not allowed**.

# IX.6 Ducts/Infiltration

IX.6.A Ducts/Infiltration (Air and Duct Leakages Sub Tab)

Audit Name On	e-story ranch Client ID 00002 Single story rar Client Name Ranch	Owner, Bob	Alt. Client ID
Audit Information	Status   Shell   Heating (1)   Cooling (1) Ducts/Infiltration   Baseloads   Health & Safety   Itemiz	red Costs (5) Utility Bills (I	0) Photos (0) Measures
Air and Duct Lea Evaluate Duct Whole Hous A at House Pr	kages       Optional Blower Door and Zonal Pressures (0)       Optional Pressure Balance (0)       Optional         Sealing	Pressure Pans (0)	Run A Lest Ri 6/2/2 9:03
Costs	eduction (\$) \$200.00		

### Press the F1 key for the HELP screen.

Click on **Air and Duct Leakages** sub tab to enter information about Air and Duct Leakage.

**LA WAP Policy**: LA WAP Agencies are not required to use the **Optional Blower Door and Zonal Pressures**, **Optional Pressure Balance**, or **Optional Pressure Pans** sub tabs.

**LA WAP Policy**: Do **not** check the **Evaluate Duct Sealing** box.

For actual sealing work techniques, follow the procedures in the Louisiana Weatherization Standard Work Specifications (SWS) Field Guides and **Attachment G** for HVAC Supply-Return Duct Testing and Duct Sealing (aka pan pressure testing).

Attachment G: Instructions for HVAC Supply-Return Duct Testing and Duct Sealing

Use the **Comment** box to enter air sealing directives for crews. These can easily be dropped onto the work order.

E NEAT Audit	- D X
Audit Name One-story ranch Client ID 00002 Single story ran Client Name RanchOwner, Bob Alt. Client	ID
Audit Information Status Shell Heating (1) Cooling (1) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (5) Utility Bills (0) Photos (0)	) Measures (11)
Air and Duct Leakages       Optional Blower Door and Zonal Pressures (0)       Optional Pressure Pans (0)         Evaluate Duct Sealing       r         Whole House Blower Door Measurements       After Weatherization (Existing)       After Weatherization (Target or Actual)         Air Leakage Rate (cfm)       2500       2000         Air Leakage Pressure Difference (Pa)       50       50         Costs       Comment       Comment	Run Audit Last Run On 6/2/2020 et 9:03 AM
Refresh Tightness Limit The minimum recommended CFM at 50pa is: 1803 CFM	

Enter the unit's pre-inspection Blower Door CFM50 reading in the Whole House Blower Door Measurements area in the Before Weatherization (Existing) - Air Leakage Rate (cfm) field.

**House Pressure Difference (Pa)** should be set to 50 Pa if using manometer in conjunction with PR/ FL @50 Mode. The manometer will mathematically adjust the actual air flow from the Blower Door fan using the Channel A building pressure reading and a Can't Reach 50 Pa Pressure factor to estimate the blower door reading at PR/ FL @50).

Enter the unit's Blower Door Target CFM50 reading in the **Whole House Blower Door Measurements** area in the **After Weatherization (Target or Actual)** – **Air Leakage Rate (cfm)** field using the following Target Reduction Percentages below:

TARGET REDUCTION PERCENTAGES					
No Air Sealing 20% 30% 40% 45% 50%					
0-1250	1251-2750	2751-4250	4251-5500	5501-7500	>7501

E NEAT Audit		- 🗆 🔀
Audit Name One-story ranch Client ID 00002 Single story rar Client Name RanchOwner, Bob	Alt. Client ID	
Audit Information Status Shell Heating (1) Cooling (1) Ducts/Infiltration Baseloads Health & Safety Itemized Costs (5) Utility Bills (0)	Photos (0) M	easures (11)
Air and Duct Leakages Optional Blower Door and Zonal Pressures (0) Optional Pressure Balance (0) Optional Pressure Pans (0)		Run Audit
Evaluate Duct Sealing  Whole House Blower Door Measurements Before Weatherization After Weatherization (Existing) (Target or Actual)		Last Run On 6/2/2020 at 9:03 AM
Air Leakage Rate (cfm)     2500     2000       at House Pressure Difference (Pa)     50     50		
Costs Infiltration Reduction (\$) \$500.00 Comment Solution Solutio	<b>^</b>	
· · ·		
Refresh Tightness Limit The minimum recommended CFM at 50pa is: 1803 CFM		

**LA WAP Policy**: Duct air sealing material and labor charges are to be <u>combined</u> in the **Infiltration Reduction (\$)** charges in the **Costs** box.

Enter an itemized total breakdown of the estimated air sealing cost for <u>both</u> Air Infiltration and Duct Air Sealing in the **Comment** box.

This information generates a baseline SIR for the building.

Do **NOT** click the **Refresh Tightness Limit** button at the bottom left corner of the screen.

# **IX.7 Baseloads**

### IX.7.A Baseloads (Water Heating Sub Tab)

Click on the **Baseloads** tab to begin entering water heater information under the **Water Heating** sub tab.

E NEAT Audit		- D ×
Audit Name One-story ranch Client ID 00002 Si	ngle story rar Client Name RanchOwner, Bob	Alt. Client ID
Audit Information   Status   Shell   Heating (2)   Cooling (2)   Ducts/Infiltration E	aseloads Health & Safety I temized Costs (7) Utility Bil	Is (0) Photos (0) Measures (16)
Water Heating (1) Refrigerators (1) Lighting Systems (1)		Run Audit
Existing Equipment	Replacement	Last Run On
Manufacturer A. O. SMITH WATER  Model PGCG-40-226	Pick from Library	8/11/2020 at
Fuel Natural Gas  Rated Input 40	Manufacturer A. O. SMITH WATER PP	8:08 AM
Location Heated Space	Model EEH-52	
Size (gal) 40 Energy Factor 0.63	Fuel Electricity	
Water Heater Wrap Present  Recovery Efficiency (%) 80.00	Rated Input 4.5	
Water Heater Pipe Insulation Present	Input Units KW	
Original Tank Insulation	Size (gal) 50	
Thickness (in) Type Fiberglass	Energy Factor 0.94 Recovery Efficiency (%) 98.0	
Shower Heads	Installation Cost (\$) \$650.00	
Number of ShowerHeads 1 Avg. GPM 3.2	Additional Cost (\$)	
Shower Use (min/day) 10	Replacement Required	
Comment		
New         Del         Optional Water Heater Details         Operational Tests         Vent	Tests Inspections	

### Press the F1 key for the HELP screen.

Enter **Existing Equipment - Location** and existing Water Heater information from the manufactured data plate.

Complete the **Original Tank Insulation** section with the R-value, **Thickness (in.)** and **Type** from the drop-down menu.

**LA WAP Policy:** Check the corresponding box if **Water Heater Wrap** or **Water Heater Pipe Insulation** are present. If the audit calls for **Water Heater Wrap**, a **minimum of R-11** must be installed if structurally (physically) possible. If the audit called for **Water Heater Pipe Insulation**, both hot and cold water pipes **within 6 feet** of the water heater must be insulated.

Under the **Shower Heads** section, enter the **Number of Shower/Heads** in the unit, **Avg. GPM** (Average gallons per minutes) of all shower heads in use, and the total **Shower Use** in minutes for an average day.

<u>Universal Policy</u>: Installed showerheads must be 2.5 gallons per minute (GPM) or less and faucet aerators installed must be 1.0 GPM or less.

**LA WAP Policy**: Water Heater **replacement** is a Health & Safety measure **only**.

<u>Universal Policy</u>: A unit without hot water is not a Health & Safety measure.

EJ NEAT Audit	
Audit Name Audit (8) Client ID 00002 S	Single story ran Client Name RanchOwner, Bob Alt. Client ID
Audit Information   Status   Shell   Heating (2)   Cooling (2)   Ducts/Infiltration	Baseloads Health & Safety Hemized Costs (1) Utility Bills (0) Photos (0) Heasures (0)
Water Heating (0) Refrigerators (0) Lighting Systems (0)	
Existing Equipment	Replacement Last Run On
Manufacturer • Model •	Pick from Library
Fuel   Rated Input	Description Manufacturer Model Manufactur NEWWH A O SMITH WATE FEH-52
Location Input Units •	Model EEH-52
Size (gal) Energy Factor	Fuel Electricity -
Water Heater Wrap Present F Recovery Efficiency (%)	Rated Input 4.5
Water Heater Pipe Insulation Present	Input Units KW -
Original Task Isociation	Size (gal) 50
	Energy Factor 0.94
R Value Thickness (in) Type	Recovery Efficiency (%) 98.0
Shower Heads	Installation Cost (\$) \$200.00
Number of ShowerHeads Avg. GPM	Additional Cost (\$) \$400.00
Shower Use (min/day)	Beolacement Bequired
Comment	
New Del Heater Details Operational Tests Ver	nt Tests Inspections

A **Replacement** for a Water Heater must be entered into the **Supply Library** in advance. This information must be entered into the **Supply Library** on the **WA Main Menu Splash Screen** under the **Hot Water Equipment** sub tab.

<database>: C:\Users\cdunn\Desktop\Test wa8-9sample.mdb Description: Sample Backend Database</database>	Data Link
Setup Library Supply Library Preferences Help	ExitWA

This information will be uploaded in the **Replacement – Pick from Library** found on the right hand portion of the **Baseload - Water Heating** sub tab.

E Supply	
Supply Name LA WAP Supply Lib Reference	xes
General Information         Cooling Equipment (0)         Construction Materials/Hardware (0)         Doors (0)           Hot Water Equipment (1)         Insulation (0)         Labor (0)         Lighting (0)         Miscellaneous Supplies (0)	Health and Safety Items (0) Heating Equipment (0)           Refrigerators (0)         Windows (0)         Other (0)
Description NEW WH	
Manufacturer A. O. SMITH WATER PROE Model EEH-52 Supplier	•
Units+ Each _ \$/Unit \$0.00	
Comment Water Heater	
EnergyDetails >>	

To model the Water Heater as a Health and Safety measure, click on the **Itemized Costs** tab. Name the H&S Water Heater in the **Measure Name** box.

E NEAT Audit	
Audit Name One-story ranch	Client ID 00002 Single story rar Client Name RanchOwner, Bob Alt. Client ID
Audit Information Status Shell Heating (2) Cooling (1)	Ducts/Infiltration   Baseloads   Health & Safety   Itemized Costs (5)   Utility Bills (0)   Photos (0)   Measures (12)
Copy from User Defined Measures	Referenced User Defined Measure Run Audit Last Run On 6/4/2020 at 1:59 PM
Measure Name [H&S Water Heater Cost (\$) [\$550.00 Include in Material B vent]	
ITEMIZED COST         by Description         II         II         6         >         10         11         12         13         14         14         15         16         16         16         16         16         16         16         17         18         19         10         10         10         10         10         10         10         10         10         10         10         10         10         10	Comment

Do **not** check the **Include in SIR** box. There is no energy savings associated with a Health and Safety water heater replacement.

Enter the total cost for the water heater replacement in the **Cost (\$)** field.

<u>Universal Policy</u>: Existing water heater tanks with an audit generated SIR of 1.0 or greater must be insulated with a **minimum of R-11** insulation, unless the manufacturer's instructions do not allow, or it is structurally impossible to insulate the tank.

### IX.7.B Baseloads (Refrigerator Sub Tab)

Click on the **Refrigerators** sub tab under **Baseload**.

### Press the F1 key for the HELP screen

Enter **Existing Equipment - Location** and existing Refrigerator information from the manufactured data plate.

Enter the original refrigerator's **Consumption** by either:

- Using accurate database information from a certified manufacturer's database (i.e AHAM or Homeenergy.org), or
- Following the DOE guidelines for Refrigerator Metered Consumption, and entering the refrigerator metered reading in minutes and kWh used.

(https://nascsp.org/wp-content/uploads/2018/02/refrigerator\_info\_toolkit.pdf)

Enter accurate data for the existing refrigerator and a possible replacement from the **Replacement - Pick from Library** drop down menu.

Auditors must select a new **replacement** refrigerator for NEAT to compare energy consumption of the existing refrigerator for an ECM replacement.

A **Replacement** for a Refrigerator must be entered into the **Supply Library** in advance. This information must be entered into the **Supply Library** on the **WA Main Menu Splash Screen** under the **Refrigerator** sub tab.

<database≻: c:∖<br="">Description: Sa</database≻:>	Users\cdunn\Desktop\Test wa8-9sample.mdb mple Backend Database		Data Link
Setup Library	Supply Library Preferences	Help	ExitWA
	<del>了</del>		

E Supply							- O ×
Supply Name LA WA	P Supply Lib				References		
General Information C Hot Water Equipment (1)	cooling Equipment (C Insulation (0)	1) Construct Labor (0)	ion Materials/Har Lighting (0)	dware (0)   Miscellaneo	Doors (0) He	alth and Safety Items Retrigerators (1)	s (0) Heating Equipment (0) Windows (0) Other (0)
Description Retrig				Source		СC	
Manufacturer GE		Model	U2411-2		Supplier		•
Units+ Each	•	\$/Unit	\$500.00				
Comment							
EnergyDetails >>) Capacity (cutt) kWhPerYear:	350	Height (in) Width (in)		Style Defrost	Top Freezer	•	
Life (yr)	15	Depth (in)		Model Year	0		
				Years Made	0		
REFRIGERATOR       by Description       by Manufacturer       by Supplier       it ( 1 > it)	•• of 1	• • • New Copy	Del	Pick Mant. Model	•	Inventory Purchased 0 Used 0 Available 0	

Verify and enter accurate replacement refrigerator energy consumption data under **Energy/Details** in the **kWhPerYear** field.

**Note:** Entering inaccurate energy consumption data on existing refrigerators and new replacements will cause disallowable costs and invalid refrigerator replacement SIRs.

This information will be uploaded in the **Replacement – Pick from Library** found on the right hand portion of the **Baseload - Refrigerator** sub tab.

E NEAT Audit			- 🗆 🗙
Audit Name One-story ranch Client ID 00002 Si	ngle story rar Client Name RanchOwner, Bob	Alt. Client ID	
Audit Information Status Shell Heating (1) Cooling (1) Ducts/Infiltration	Baseloads Health & Safety Itemized Costs (5) Utility Bills	(0) Photos (0) N	feasures (11)
Water Heating (1) Refrigerators (1) Lighting Systems (0)			Run Audit
			6/2/2020
	Pick from Library	Manufacturer	Model
Style Top Preezer	Manufacturer Al Beschpion Refrig (2)	GE	U2411-2
Size (cu ft) 17.2 Location Heated Space	Model A Refrig	GE	U2411-2
Available Space Dimensions	Style Top Freezer		
Height (in) Width (in) Depth (in)	Defrost Automatic		
Consumption         Label/Database Annual Consumption         KWh/yr       200       Age       15 or more years •         Door Seal Condition       Fair - Some Wear •       •         OR       Metered Consumption       Metering Minutes       Manual Defrost       □         Meter Reading (kWh)       Includes Defrost Cycle       □         Adjusted Consumption (kWh/yr)       270.0       Refresh	kWh/yr       600       Size (cu ft)       18.6         Height (in)       Width (in)       Depth (in)         Installation Cost (\$)       \$700.00         Additional Cost (\$)       Adjusted Consumption (kWh/yr)       690.0         Annual Savings (kWh/yr)       -420.0         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.		

Verify accurate **kWh/yr** usage for both existing and new refrigerator for ECM replacement.

Replace the refrigerator if the measure receives an SIR of 1.0 or greater on the energy audit's **Recommended Measure Report**.

### IX.7.C Baseloads (Lighting Systems Sub Tab)

EE NEAT Audit		- 🗆 🗙
Audit Name One-story ranch	Client ID 00002 Single story rar Client Name RanchOwner, Bob Alt. Client ID	
Audit Information       Status       Shell       Heating (2)       Cooling (1)         Water Heating (1)       Refrigerators (1)       Lighting Systems (0)         Existing Incandescent Light       Light Code       Light Code	Ducts/Infiltration Baseloads Health & Safety Itemized Costs (6) Utility Bills (0) Photos (0) N	Run Audit Last Run On 6/4/2020
Room Kitchen Location Ceiling Lamp Type Standard Quantity 6 Size (watts) 80 Use (hours/day) 6	Additional Cost (\$/bulb)	at 1:59 PM
LIGHTING SYSTEM       by Light Code       If (1) > II > II > II         New   Copy	Comment Del	

### Press the F1 key for the HELP screen

Enter the required data on existing lighting and replacement lighting under the **Existing Incandescent Light** section and the **Replacement Compact Fluorescent Light (CFL)**.

Replace the lighting if the measure receives an SIR of 1.0 or greater on the energy audit's **Recommended Measure Report**.

# IX.8 Health & Safety

NEAT Audit		- C ×
udit Name One-story ranch Client	ID 00002 Single story rar Client Name RanchOwner, Bob	Alt. Client ID
udit Information   Status   Shell   Heating (1)   Cooling (1)   Ducts/	Infiltration Baseloads Health & Safety I temized Costs (5) Utility Bills	(0) Photos (0) Measures (11)
While House Equipment Building Shell Smoke Detector is Needed CO Monitor is Needed Carbon Monoxide Measurements Room with Heating System (ppm) Room with Water Heater (ppm) Living Area (ppm) Kitchen (ppm) Comment		Run Audit Last Run On 6/2/2020 at 9:03 AM

Follow the Health and Safety guidelines as found in the Louisiana Health and Safety Plan and DOE WPNs.

Enter the Health & Safety issues of the unit under **Whole House, Equipment,** and **Building Shell** under each sub tab. Select all Health and Safety boxes **that apply** to the unit.

Common hazards found include:

- Lead paint
- Moisture issues
- Electrical wiring
- CO
- Improper venting of combustion appliances

<u>Universal Policy</u>: The installed equipment manuals must be provided to the unit's occupants.

### IX.8.A Health & Safety (Equipment Sub Tab)

NEAT Audit				
dit Name One-story ranch	Client ID 00002 Singl	e story rar Client Name F	RanchOwner, Bob	Alt. Client ID
dit Information Status Shell Heating (1) Co	oling (1) Ducts/Infiltration Bas	eloads Health & Safety	Itemized Costs (5) Utility Bills (	0) Photos (0) Measures (11)
Whole House Equipment Building Shell				Run Audit
Worse Case Condition Draft Measurements —	Cook Stove			Last Run O
Space Heating System(s) (0)	CO Measurement (	Oven (ppm) 225		6/2/2020
Water Heating (0)	CO Measurement Bur	ner 1 (ppm)		9:03 AM
	CO Measurement Bur	ner 2 (ppm)		
	CO Measurement Bur	ner 3 (ppm)		
Wood Stove/Fireplace is Present	CO Measurement Bur	ner4 (ppm)		
Improper Venting	Gas Le	ak Present I		
Combustion Air is Inadequate	Exhaust Fans			-
	Bathrooms	Kitchen	Air-to-Air Heat Exchanger	
Clothes Dryer	Missing 🗖	Missing 🗖	Exists 🗖	
Improper Venting I	Not Operational 🔽	Not Operational 🗖		
	Improper Venting	Improper Venting 🗖		
Comment bath one fan 66 CFM				
kitchen fan 120 CFM				

Enter all exhaust fan CFM measurements in the **Comment** box and venting information on bathrooms and kitchen under the **Equipment** tab for ASHRAE 62.2 2016 standards.

Depending on the severity of the health and safety issue deferral may be necessary.

Do not estimate Health and Safety energy savings.

Do not check the **SIR box** on any Health and Safety measures.

For additional guidance related to ASHRAE 62.2 2016 standards, please refer to **Attachment H**.

Attachment H: Additional ASHRAE 62.2 2016 Guidance

### **IX.9 Itemized Costs**

The **Itemized Costs** tab may be used to enter Repair and Health and Safety items not listed under **Health & Safety**.

**Itemized Costs** <u>must not</u> be used to estimate savings, SIR or items already offered under other tabs of the NEAT Audit.

Select from the User Defined Measure Library or from the Library of Health and Safety Measures. You can also create your own allowable named measure if it is not one in the existing library.

E NEAT Audit	
Audit Name One-story ranch Client ID 00002 Single	story rar Client Name RanchOwner, Bob Alt. Client ID
Audit Information Status Shell Heating (1) Cooling (1) Ducts/Infiltration Base	loads Health & Safety Itemized Costs (5) Utility Bills (0) Photos (0) Measures (11)
Copy from User Defined Measures	Referenced User Defined Measure
Copy from Library Health and Safety Measures	Clear Reference to User Defined Measure
Order         MeasureName           101         Fix Other Venting Related Problems (Heating System)           102         Fix Limit Control Not Working           103         Implement Asbestos Avoidance (Boiler Distribution System)           104         Fix Cracked Heat Exchanger           105         Fix Insufficient Clearance from Combustibles           106         Fix Gas Leak Present           107         Fix Fuel Shutoff Valve Not Present           108         Fix Drip Leg Not Present           109         Fix Any Other Heating System Problem           110         Relocate Thermostat           111         Anticinetry Adjuctment Meedod	tem)

Do <u>not</u> estimate User Defined Health and Safety energy savings. Do <u>not</u> check **Include in SIR box** on any Health and Safety measures.

E NEAT Audit	
Audit Name One-story ranch Client ID 00002 Single	story rar Client Name RanchOwner, Bob Alt. Client ID
Audit Information   Status   Shell   Heating (1)   Cooling (1)   Ducts/Infiltration   Base	loads   Health & Safety   Itemized Costs (5)   Utility Bills (0)   Photos (0)   Measures (11)
Copy from User Defined Measures	Referenced User Defined Measure Run Audit Last Run On Clear Reference to User Defined Measure dt
Cost (\$) \$150.00 Include in SIR  Cost (\$) \$150.00 Include in SIR  Cost (\$) The second ducting Annual Energy Savings Units	
ITEMIZED COST     Comment       by Description     •       If (1)     •       If (1)     •       If (1)     •	

The **Itemized Costs** tab is also where the Incidental Repairs that are necessary to make weatherization work possible are added to the NEAT energy audit.

<u>Universal Policy</u>: Incidental Repairs are <u>to be included</u> in the unit's cumulative SIR, and the entire unit <u>must still have</u> a cumulative SIR of 1.0 or greater.

Enter the **Measure Name**, the **Cost (\$)**, **Material** and check the **Include in SIR** box to make sure NEAT treats the measure as an Incidental Repair.

<u>NOTE:</u> If you do not check the **Include in SIR** box, the NEAT energy audit will treat the measure as a health and safety measure which is not accurate.

No Annual Energy Savings should be used for Incidental Repairs.

Use the **Set Up Library** to setup frequently used Incidental Repairs used on the **Itemized Costs** Tab. To do this, please refer to **V.6 User Defined** *Measures* of this manual.

EE NEAT Audit	
Audit Name One-story ranch	Client ID 00002 Single story rar Client Name RanchOwner, Bob Alt. Client ID
Audit Information Status Shell Heating (2) Cooling (1)	Ducts/Infiltration   Baseloads   Health & Safety   Itemized Costs (6)   Utility Bills (0)   Photos (0)   Measures (15)
Copy from User Defined Measures Copy from Library Health and Safety Measure Measure Name GHW Cost (s) \$250.00 Include in Material Limited caulking Annual Energy Savings Units	Referenced User Defined Measure  Run Audit Last Run On 6/5/2020 at 10:52 AM  SIR
by Description	Comment

DOE approved General Heat Waste (GHW) materials will be installed in eligible homes without the need for justification as an ECM.

GHW items are intended to be relatively low-cost items that can be quickly and easily installed.

**LA WAP Policy**: The total GHW measure costs including labor **will not exceed \$250.00**. Louisiana DOE approved GHW are as followed:

- Water heater wrap
- Water heater pipe insulation
- Faucet aerators
- Low-flow showerheads
- Limited weather-stripping and caulking for comfort
- Furnace or air conditioner filters
- Attic Hatch box weather stripping

# IX.10 Utility Bills

Louisiana WAP Agencies are not required to use the Utility Bills tab.

E NEAT Audit		
Audit Name Audit (8)	Client ID 00002 Single story rar Client Name RanchOwner, Bob	Alt. Client ID
Audit Information   Status   Shell   Heating (2)   Cooling	2) ] Ducts/Infiltration ] Baseloads ] Health & Safety ] Itemized Costs (3)	billy Bills (0) Photos (0) Measures (0)
Type	Month Day Usage Degree Days	Pun Audit
Period .		Lest Run On
Units 🔹		Not Run
Days in first period		ot
Degree Days Base Temperature		
Base Load		
Comment		
	Record: H 4 1 + H +* of 1	

## **IX.11 Photos**

_	
NEAT Audit	
Audit Name One-story ranch	Client ID 00002 Single story rar Client Name RanchOwner, Bob Alt. Client ID
Audit Information   Status   Shell   Heating (1)   Cooling (1)	) Ducts/Infiltration Baseloads Health & Safety I termized Costs (5) Utility Bills (0) Photos (0) Measures (11)
	Edit → Save ← Add Photo Link(s) Delete Photo Link(s)
	✓     ▲     Bright     ↑       ↓     Q     N     Color     ★     □     Contrast     ↑
Path Category	Comment

Louisiana WAP Agencies are not required to use the **Photos** tab.

**LA WAP Policy**: All photos of installed measures <u>are required</u> to be placed in the unit's file.

### IX.12 Measures

At this point, the energy audit is ready to run by clicking the **Run Audit** button on the **Measures** tab.

E NEAT Audit					
Audit Name Audit (8)		Client ID 00002 Single stor	/ rar Client Name	RanchOwner, Bob	Alt. Client ID
Audit Information Status Shell	Heating (2) Cooling (2)	Ducts/Infiltration Baseload	is Health & Safety	hemized Costs (3) Utility Bills (0)	Photos (0) Measures (0)
# Measure Name	Components	WO Contractor	Cost Center	≪Est. Cost> Est SIR	Run Audit Lest Run On Not Run
Select All UnSelect All	Invert Select			Create Work Or	der(s)
				P Include Details for	or Materials

After evaluation of the **NEAT Recommended Measures** report, changes can be made under any tab within NEAT, and the audit may be re-run by returning to the **Run Audit** button.

Assistance Program	NEAT Rec	ommended N	<i>Aeasures</i>	3
Agency Louisiana		State US Ru	n On 5/26/2020	12:52:55 <b>RunID</b> 1590515575
Client ID 00002 Single story ranch		Ve	rsion 8.9.0.5 (2/1	10/2012) AuditID -163810036
Audit Name One-story r	anch	Audit Date	2/10/2012	
Client Name RanchOwn	er, Bob	Auditor		
Weather File TALAHSFL	WX	Setup Library Name	Vernon Setup Libra	ray
Comment Typical 26'>	50' one-story ranch.			
Annual Energy	and Cost S	avings		
Index Recommended Measure	Components	Heating (MMBtu) (\$)	Cooling (kWh) (	BaseLoad Tot (\$) (kWh) (\$) (MMBt

# X. NEAT Recommended Measures Report

NEAT Red	commended Measures
Agency Louisiana Client ID 50002 Single story ranch	State US Run On \$252200 1252 55 RunID [1500515575] Version \$55.52102012] AndùID [1508100367]
Audit Name Deservand	Audit Date 200/2012
Client Name PanthOuner, Bob	Aulitor
Weather File TALAHSEL WX	Setup Library Name Verion Setup Library
Comment Spear 20x00 one-story rand.	

# Annual Energy and Cost Savings

Index	Recommended	Recommended Components	Heating		Cooling		BaseLoad		Totel	
	Measure	-822	(MMBtu)	(5)	(k 11%)	(5)	(k#h)	(5)	(MMBtu)	
1	In Etration Redictn		1.3	37	238	23	0		0 22	
2	Low Flow Showerheads		0.0	0	0	0	248	2	3 0.8	
3	DWH Pipe Insulation		0.0	0	0	0	153	1	5 0.5	
4	DWH Tank Insulation		0.0	0	0	0	270	2	6 0.9	
5	Wall Insulation	WL1-NWL2-S.WL3- E.WL4-W	3.6	100	527	50	0	9	0 5.4	
8	Acto Ins. R-19	At	2.0	- 54	396	38	0		0 3.3	
7	Refrigerator Rpiorent		0.0	0	0	0	804	2	5 27	

Index	Recommended Measure	Components	Measure Sarings (Styr)	Measure Cost (\$)	Measure SIR	Cumulative Cost (S)	Cumulative SIR
1	Install-dryer vent		0	150	0.0	150	0.0
2	install sash look		0	10	0.0	160	0.0
3	Infiltration Redictin		60	200	2.5	360	1.4
4	Low Roy Shoverheads		23	20	13.0	380	2.1
5	DWH Pipe Insulation		15	15	10.1	395	2.4
0	DWH Tank Insulation		28	-40	6.7	435	2.8
1	Wall Insulation	WL1-NWL2- S.WL3-E.WL4-W	150	1107	2.0	1541	22
8	Atto Ins. R-19	At	92	741	1.8	2282	2.1
9	Refrigerator Rolorest		78	700	1.3	2962	1.9
10	Install smoke alarm		0	20	0.0	3002	0.0
Mat	erials						
Index	Material	Type			Onan	tity Units	

The **Energy Saving Measure Economics** is the most important table for the energy auditor.

The Incidental Repairs that are needed to complete, preserve, and/or protect energy conservation measures (ECMs) will be located above the ECMs with an Incidental Repair individual and Cumulative SIR of zero.

Energy Saving Measure Economics							<u>-</u> ひ
Index	Recommended Measure	Components	Measure Savings (S/yr)	Measure Cost (\$)	Measure SIR	Cumulative Cost (\$)	Cumulative SIR
1	Install sash look		0	10	0.0	10	0.0
2	roof repair		0	120	0.0	130	0.0
-	100 ( 0.11						
4	Low Flow Showerheads		23	20	13.8	350	2.2
5	DWH Pipe Insulation		15	15	10.1	385	2.6
6	DWH Tank Insulation		26	40	6.7	405	3.0

<u>Universal Policy</u>: Each individual **Measure SIR**, except for Infiltration Reduction, **must have an SIR of 1.0 or greater** to be eligible as an ECM.

The **Infiltration Reduction** individual measure SIR can be below 1.0 with air sealing performed on the unit, **as long as**, the unit's **total Cumulative SIR is 1.0 or greater.** 

# **Energy Saving Measure Economics**

Index	Recommended Measure	Components	Measure Savings (\$/yr)	Measure Cost (\$)	Measure SIR	Cumulative Cost (\$)	Cumulative SIR
1	Install sash lock		0	10	0.0	10	0.0
2	new bonus room finished		0	3500	0.0	3510	0.0
3	roof repair		0	120	0.0	3630	0.0
4	Infiltration Redctn		7	500	0.1	4130	0.0
5	Smart Thermostat		96	75	45.2	4205	0.3
6	Low Flow Showerheads		16	20	9.7	4225	0.3
7	DWH Pipe Insulation		10	15	7.1	4240	0.4
8	Lighting Retrofits	L1	79	66	5.0	4306	0.4
9	DWH Tank Insulation		15	40	4.1	4346	0.5
10	Wall Insulation	WL1-N,WL2- S,WL3-E,WL4-W	251	1107	3.4	5452	1.1
11	Attic Ins. R-30	A1	254	1170	3.2	6622	
12	Floor Ins. R-19	FCR1	145	1320	1.7	7942	1.5
13	H&S Water Heater		0	650	0.0	8592	0.0
14	Install dryer vent		0	150	0.0	8742	0.0

The Health and Safety items are assigned to the bottom of the table and <u>do not</u> <u>have a SIR and do not contribute</u> to the **Cumulative SIR**.

	0/ 0						
Index	Recommended Measure	Components	Measure Savings (\$/yr)	Measure Cost (\$)	Measure SIR	Cumulative Cost (\$)	Cumulative SIR
1	Install sash lock		0	10	0.0	10	0.0
2	new bonus room finished		0	3500	0.0	3510	0.0
3	roof repair		0	120	0.0	3630	0.0
4	Infiltration Redctn		23	200	1.0	3830	0.1
5	Low Flow Showerheads		27	20	16.0	3850	0.1
6	DWH Pipe Insulation		17	15	11.8	3865	0.2
7	DWH Tank Insulation		30	40	7.8	3905	0.3
8	Attic Ins. R-19	A1	157	741	3.1	4646	0.7
9	Wall Insulation	WL1-N,WL2- S,WL3-E,WL4-W	170	1107	2.2	5752	1.0
10	Install dryer vent		0	150	0.0	5902	0.0
11	Install smoke alarm		0	20	0.0	5922	0.0

# **Energy Saving Measure Economics**

<u>Universal Policy</u>: The whole house Cumulative SIR <u>must have</u> an SIR of 1 or greater. If <u>not</u>, all weatherization work is **ineligible**.

Excessive Incidental Repair work will bring the **Cumulative SIR** below 1, resulting in a package that does not meet DOE rules or Louisiana policies.

# **Energy Saving Measure Economics**

	Index	Recommended Measure	Components	Measure Savings (\$/yr)	Measure Cost (\$)	Measure SIR	Cumulative Cost (\$)	Cumulative SIR
	1	Install sash lock		0	10	0.0	10	0.0
	2	new bonus room finished		0	3500	0.0	3510	0.0
- 1	3	roof repair		0	120	0.0	3630	0.0
	4	Infiltration Redctn		5	500	0.1	4130	0.0
	5	Low Flow Showerheads		16	20	9.7	4150	0.1
	6	DWH Pipe Insulation		10	15	7.1	4165	0.1
	7	Smart Thermostat	HS1	39	75	6.1	4240	0.2
	8	DWH Tank Insulation		15	40	4.1	4280	0.2
	9	Attic Ins. R-19	A1	150	741	3.0	5021	0.6
	10	Wall Insulation	WL1-N,WL2- S,WL3-E,WL4-W	160	1107	2.1	6127	0.9
	11	Install dryer vent		0	150	0.0	6277	0.0
	12	Install smoke alarm		0	20	0.0	6297	0.0

# XI. Work Orders

# XI.1 Creating a Work Order

Once the WA audit has been run and completed for a unit, the next step is to create a **Work Order**.

From the WA Main Menu Splash Screen, click on Site Built (NEAT) button.



**Note:** This is the recommended way to create a Work Order. To create a **new** work order for an audit, the best way is to create the work order **inside** the NEAT audit and not through the Work Order button on the WA Splash Screen. Creating a work order through the WA Splash Screen will not associate it to the audit being worked on.

Navigate to the **Measure** tab.

E NEAT Audit										
Audit Name         One-story ranch         Client ID         00002 Single story rar         Client Name         RanchOwner, Bob         Alt. Client ID           Audit Information         Status         Shell         Heating (1)         Cooling (1)         Ducts/Infiltration         Baseloads         Heatth & Safety         Itemized Costs (5)         Utility Bills (0)         Photos (0)         Measures (11)										
Measure Name     Install sash lock	Components WOC	ontractor Cost C	enter <est. cost=""> Est SIR</est.>	Costs Run Audit						
2 new bonus room finished	N			Costs at						
4 Infiltration Redctn	에   ㅋ	· ·	<ul> <li>◆ \$120.00</li> <li>● \$200.00</li> <li>● \$200.00</li> <li>● \$200.00</li> </ul>	Costs 2:38 PM						
5 Low Flow Showerheads 6 DWH Pipe Insulation	ש ש	•	<ul> <li>✓ \$20.00</li> <li>✓ \$15.00</li> <li>✓ 10.1</li> </ul>	Costs						

Click on the **Create Work Order(s)** button in the bottom right corner to create a work order.

10 Install dryer vent	ম	•	
11 Install smoke alarm	√	-	→ \$20.00 0.0 Costs
			<b>_</b>
Select All UnSelect All Invert Select			Create Work Order(s)
			· Include Details for Materials

When the **Create Work Order** dialogue box appears choose the appropriate **option** and click **OK**.



Click Ok again for the Work Order tab.



Select **Work Order** in the **Report** box, and click the **Preview** button to view the work order in PDF format.

Work Order					
wo wo/00002 s	ingle story ranch/1	Client ID 00002 S	Single story	Client Name RanchOwner, Bob	Alt. Client ID
Work Order Informatio	n Status Measures (11) Photos (0)				
Work Order	WO/00002 Single story ranch/1		Comment	[	
Client ID	00002 Single story ranch 🔹				
Agency	Louisiana Sta	ite US			
<audit name=""></audit>	One-story ranch 🗾				
<supply library=""></supply>	•		_		
Contractor/Crew	•			Work Order Economic Su	mmary
Work Order Type	Weatherization 💽			Number of Active Measures 11	
				Cumulative Estimated Cost \$5,9	22.46
				Cumulative Actual Cost	
			L		
WORK ORDER	by Client ID			Select Benort Work Order	
by Altornato Client	D by Contractor				
by Client Nam				Preview Print Shapshot File	
		1		$\wedge$	
	New Copy Del			ור	

The Work Order Report will contain:

- Name of the Audit
- Client information
- All measures to be completed by the contractor
- Comments entered

[Left Intentionally Blank]

Astronomic Section Astronomic Program		<b>W</b> ON	- Cru		
WORK ORDER IN	IFORMATION				
Work Order Na	ne: WO/00002 Si	ngle story ranch/1			
Work Order Ty	pe: Weatherizatio	'n			
Audit Na	ne: One-story ran	ch			
CLIENT INFORM	ATION				
Client Name: R	an ch Own er, Bob		Address	:	
Client ID: 0	0002 Single story r	anch			
Alt. Client ID:					
CLIENT CONTAC	T INFORMATI	<u>ON</u>			
RanchOwner, Bob	(851) 234-5878	(651) 123-4567		Applicant/Person of Record	V
RanchFriend, Fred		(651) 888-9999		Other Contact for Applicant	
AGENCY INFOR	ΜΑΠΟΝ				
Agency: Louisi	ana			Agency Phone:	
Address:				Fax:	
,				Email Address:	
Company Name	& License Numbe	26			
Contractor's Sig	nature:				

[Left Intentionally Blank]

### XI.2 Customizing a Work Order

Under the **NEAT Audit - Measure** tab, multiple work orders can be created and customized with measures separated out for specific contractors by checking or unchecking the box under the heading **WO**.

E NEA	Γ Audit									- D X
Audit N	Name One-story ranch	Clien	t ID 00	0002 Single story	rar Client Name Ranc	hOwner, Bob	$\checkmark$	Alt. Clie	ent ID [	
Audit Inf	ormation Status Shell Heatin	g (1) Cooling (1) Ducts	<b>Jufij</b> tre	ation Baseloads	Health & Safety Item	iized Costs (5)	Utility Bill:	s (0) Photos	s (0)	Measures (11)
+	Measure Name	Components		Contractor	Cost Center	<est. cost=""></est.>	Est SIR			Run Audit
1	Install sash lock		<b>N</b>	•	•	\$9.50	0.0	Costs		Last Run On
2	new bonus room finished		]□ <		•	\$3,500.00	0.0	Costs		6/2/2020 at
3	roof repair		ק[	•	•	\$120.00	0.0	Costs		9:03 AM
4	Infiltration Redctn		되[	•	•	\$200.00	1.0	Costs		
5	Low Flow Showerheads			•	•	\$20.00	16.0	Costs		
6	DWH Pipe Insulation		<b>N</b>	•	•	\$15.00	11.8	Costs		
7	DWH Tank Insulation		<b>N</b>	•	•	\$40.00	7.8	Costs		
8	Attic Ins. R-19	A1	<b>N</b>	•	•	\$741.00	3.1	Costs		
9	Wall Insulation	WL1-N,WL2-S,WL3-E,V		•	•	\$1,106.96	2.2	Costs		
10	Install dryer vent		<b>N</b>	•	•	\$150.00	0.0	Costs		
11	Install smoke alarm		<b>N</b>	•	•	\$20.00	0.0	Costs		
									•	
Sele	ect All UnSelect All Inver	tSelect					Create Wor	k Order(s)		
							clude Deta	ils for Materia	als	

To create and print the customized work orders, select the **Create Work Order(s)** button at the bottom of the **Measure** tab. If this is going to be an additional work order, select the **SAVE the previously generated work orders and create new ones** option.

E Create Work Order	
There are work orders previously generated from this Audit	
SAVE the previously generated work orders and create new ones	
$C_{\rm e}$ REPLACE the previously generated work orders with new ones	
C CANCEL creation of work order	
OK	

# XI.3 Work Order Information

To view all work orders for the audit, click on the drop-down menu in the **Work Order** control box under the **Work Order Information** tab.

E Work Ord	er					— D ×
wo wo/o	0002 S	ingle story ranch/4		Client ID 00002	Single story	Client Name RanchOwner, Bob Alt. Client ID
Work Order I	nformatio	Neasures (1)	Photos (0)			
Work	Order	WO/00002 Single story ran	:5/4		Comment	1
Cli	ent ID	00002 Single story ranch	•			
	Agency	Louisiana	Ste	ite US		
<audit< th=""><th>Name&gt;</th><th>One-story ranch</th><th>•</th><th></th><th></th><th></th></audit<>	Name>	One-story ranch	•			
Supply	Library?	LA WAP Supply Lib	×.			
Contract	los/Crew		•			Work Order Economic Summary
Work Ord	er Type	Weatherization	•			Number of Active Measures 1
						Cumulative Estimated Cost \$9.50
						Cumulative Actual Cost
		_				_
		٦L				- <b>1</b> -
WORK	00050					
by Work O	rder Nan	w -	by Client ID			Select Report Work Order
by Alterna	te Client I		by Contractor			Preview Print Snanchot File
by Cl	ient Nam				- 1	- to the state of
RIC	1	H + of 1 Now		1		
			Coby Dei			

WORK ORDER			REPORT	port Work Order			
hu Alternate Olient ID	Work Order Name	ClientID		Alternate Client ID	Contractor	Agency	State
by Alternate Client ID	WO/00002 Single story ranch/1	00002 Single story ranch				Louisiana	US
by Client Name	WO/00002 Single story ranch/2	00002 Single story ranch				Louisiana	US
	WO/00002 Single story ranch/3	00002 Single story ranch				Louisiana	US
	WO/00002 Single story ranch/4	00002 Single story ranch				Louisiana	US
L							
				🔽 Include	Details for Mater	ials	

To preview, print, or take a snapshot file of the work order, use the **Report** control box.
#### XI.4 Measures

To add comments and/or instructions to the measures, click on the Measure tab in the Work Order and add the needed comments for the measure in the **Comment** box provided.

T Au	dit				-						
置臣 V	Vor	k Or	der	Ļ	Ļ						
wo	٧	/0/	00002 Sing	le story ra	h/1	Client ID 0000	12 Single story	Client Name Ra	nchOwner, Bob	Alt. Clien	t ID
Wo	rk C	rder	Information S	itatus Measure	s (11) Photos (0)						
			Order#1	Active 🔽	,						
		Mea:	sureTvpe	1.0000 1	•			マン			
	Me	asui	e Name Inst	all sash lock			Com	mont Three locks	needed		
		Co	mponents					Three locito	needed		
		Co	ost Center		•						
	Ma	teria	als/Labor Det	ails				Actual/Es	timated Adjustmen	t Factor (%)	100.00%
Γ		#	Type^	Copy Supply^	Desc	ription			<comment></comment>		
	۲	10	Unspecifie		Sash Lock (+)						
[	*										
					1 I					1	
l	Red	cord:		1	▶ <b>*</b> of 1	<b>1</b>					
Г	ME	EAS	URES				Show Audit M	aterial Detail	E	stimated	Actual
	by	Me	asure Name		•	Crea	ate Materials I	Jsing Audit Detail	Cost	\$9.50	
	H	4	<u>1</u> → H	▶* of 11	New Copy Del	5	how Audit Ec	nomic Details	SIR	0.0	
	-	-									

To add comments to the materials and/or labor, use the horizontal scroll bar in the **Material/Labor Details** box to navigate the spreadsheet to the right to locate the **Description** and **Comment** areas. Add the needed description and/or comments for the **Material/Labor Details**.

E NE/	tibuA I	
Audit	E Work Order	×
Audit	WO         WO/00002 Single story ranch/1         Client ID         00002 Single story         Client Name         RanchOwner, Bob         Alt. Client ID	
	Work Order Information Status Measures (11) Photos (0)	
+	Order# 1 Active 🔽	
1	Measure Type	
2	Measure Name Install sash lock Comment Three locks needed on front windows	^
3	Components	
4	Actual/Estimated Adjustment Factor (%) 100.00%	~
	materials/cardo de la securita de la	- L
6	Type Copy Cupy (Cupy Cupy) Description Comment     Comment     Sash Lock (+) Antique Brass Needed	
7		
8		
9		
· ·		
10		
11		
	Record: I I I I I I I I Record: I I I I I I I I I I I I I I I I I I I	)
	MEASURES Show Audit Material Detail	
	by Measure Name Cost \$9.50 Create Materials Using Audit Detail Cost \$9.50	
	III     New     Copy     Del     Show Audit Economic Details     SIR     0.0	
Se		

To print the Work Order with the added comments, go to the **Work Order Information** tab and select the **Work Order** in the **Report** box and click **print or preview.** 

Assistance Program		<b>WO</b> rk	Orae	r				
WORK ORDER I	NFORMATION							
Work Order Na	ame: WO/00002 Sin	igle story ranch/1						
Work Order T Audit Na	ype: Weatherization ame: One-story rand	n sh						
CLIENT INFORM	Ranch Owner, Bob		Address:					
Client ID: (	00002 Single story ra	anch		,				
Alt. Client ID:								
CLIENT CONTA	CT INFORMATIC	<u>NC</u>						
RanchOwner, Bob	(851) 234-5878	(851) 123-4587	A	pplicant/P	erson of	V		
				Reco		_		
Measures	tall sash lock		Co	mpone	nts			In sp ected
Measures Measure 1 Inst Comment Three I	tall sash lock ocks needed on fr	ont windows <b>&lt;</b>		mpone	nts			In spected
Measures Measure 1 Inst Comment Three I	tall sash lock ocks needed on fr	ont windows		mpone Estimate	nts ed	064	Actual	In spected
Measures Measure 1 Insi Comment Three I # Material / Labor 10 Unspecified	tall sash lock ocks needed on fr Description /Comm Sash Lock (+)	ont windows ment Units Each		mpone Estimate Init Cost \$9.50	nts ed Total \$9.50	Qty	Actual Unit Cost	In sp ected
<i>Measures</i> <i>Measure</i> 1 Inst <i>Comment</i> Three I # <i>Material / Labor</i> 10 Unspecified	tall sash lock ocks needed on fr Description /Comm Sash Lock (+) Antique Brass Ne	ontwindows ment Units Each eded		mpone Estimate Init Cost \$9.50	nts ed Total \$9.50	Qty	Actual Unit Cost	In sp ected
Measures Measure 1 Inst Comment Three I # Material / Labor 10 Unspecified Other Detail	tall sash lock ocks needed on fr Description /Com Sash Lock (+) Antique Brass Ne	ont windows ment Units Each eded		mpone Estimate Init Cost \$9.50	nts ed Total \$9.50	Qty	Actual Unit Cost	In spected
Measures Measure 1 Inst Comment Three I # Material / Labor 10 Unspecified Other Detail	tall sash lock ocks needed on fr <i>Description /Com</i> Sash Lock (+) Antique Brass Ne	ont windows ment Units Each eded		mpone Estimate Init Cost \$9.50	nts ed Total \$9.50	Qty	Actual Unit Cost	In sp ected
Measure 1 Inst Measure 1 Inst Comment Three I # Material / Labor 10 Unspecified Other Detail	tall sash lock ocks needed on fr <i>Description /Com</i> r Sash Lock (+) Antique Brass Ne	ont windows ment Units Each eded		mpone Estimate Init Cost \$9.50	nts ed Total \$9.50		Actual Unit Cost	In sp ected
Measures Measure 1 Insi Comment Three I # Material / Labor 10 Unspecified Other Detail	tall sash lock ocks needed on fr Description /Com Sash Lock (+) Antique Brass Ne	ont windows	Qty U 1 2 easure Sub 1	mpone Estimate Init Cost \$9.50 Total:	nts ed Total \$9.50	 	Actual Unit Cost	In sp ected
Measure 1 Inst Measure 1 Inst Comment Three I # Material / Labor 10 Unspecified Other Detail Field Notes:	tall sash lock ocks needed on fr Description /Comr Sash Lock (+) Antique Brass Ne	ont windows	Qty U 1 2 easure Sub 1	mpone Estimate Init Cost \$9.50 Total:	nts ed Total \$9.50 \$9.50	Qty	Actual Unit Cost	In sp ected
Measure 1 Inst Comment Three I # Material /Labor 10 Unspecified Other Detail Field Notes:	tall sash lock ocks needed on fr Description /Comr Sash Lock (+) Antique Brass Ne	ont windows	Qty U 1 2 2 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	mpone Estimate Init Cost \$9.50 Total:	nts ed Total \$9.50 \$9.50	Qty	Actual Unit Cost	In sp ected
Measures Measure 1 Inst Comment Three I # Material / Labor 10 Unspecified Other Detail	tall sash lock ocks needed on fr Description /Comr Sash Lock (+) Antique Brass Ner	ont windows	Qty U aty U 1 2 easure Sub 1	Impone Estimate Init Cost \$9.50 Total:	nts ed Total \$9.50 \$9.50	Qty	Actual Unit Cost	In sp ected
Measure 1 Inst Measure 1 Inst Comment Three I # Material / Labor 10 Unspecified Other Detail Field Notes: Measure 2 new	tall sash lock ocks needed on fr Description /Com Sash Lock (+) Antique Brass Ne	ont windows	Co Qty U 1 2 easure Sub 1 Co	mpone Estimate Init Cost \$9.50 Total:	nts		Actual Unit Cost	In sp ected
Measures Measure 1 Insi Comment Three I # Material / Labor 10 Unspecified Other Detail Field Notes: Field Notes: Measure 2 new Comment	tall sash lock ocks needed on fr Description /Com Sash Lock (+) Antique Brass Ne	ont windows	Qty U Qty U 1 2 easure Sub 1 Co	mpone Estimate Init Cost \$9.50 Total: mpone	nts ed 59.50 \$9.50		Actual Unit Cost	In sp ected
Measures Measure 1 Inst Comment Three I # Material / Labor 10 Unspecified Other Detail Field Notes: Field Notes: Measure 2 new Comment	tall sash lock ocks needed on fr Description /Comr Sash Lock (+) Antique Brass Ner	ont windows	Qty U Qty U 1 2 easure Sub 1 Co	mpone Estimate nit Cost \$9.50 Fotal: mpone Estimate	nts ed Total \$9.50 \$9.50	Qty	Actual Unit Cost	In sp ected Total Inspected Inspected Inspected
Measures Measure 1 Inst Comment Three I # Material / Labor 10 Unspecified Other Detail [	tall sash lock ocks needed on fr Description /Com Sash Lock (+) Antique Brass Ne	ont windows	Co Qty U 1 Co Co Qty U	mpone Estimate S9.50 Total: mpone Estimate	nts ed Total \$9.50 \$9.50 thts ed Total	Qty	Actual Unit Cost	In sp ected Total In sp ected

## Attachment A Louisiana Energy Audit Data Collection Form

Ener	gy Audit D	ata Collect	ion Forn	n	Agency / Pari	SH		App. Date:
Application #: ClientName: ClientAddress: parish:			ClientID: Day Phone: ClientPrecinct:		Assessors: Contact	Types	1. Applicant/Perso 2. Other Contact fo 3. Landlord / Own 4. Landlord / Own	n of Record or Applicant er 1 er 2
Ownership:       Oc         Owner       Ser         Renter       Juv         Other       Dis         Dwelling Setup        # Rooms (T        # Bedrooms        # Fireplaces        # CO2 Patie         Cond. Stories:         Length :	cupants:         niorFlag:         venileFlag:         venileFlag:         sabilityFlag:         babilityFlag:         babilityFlag	Household size Ethnicity: Client Languag Disability Type elling Type RG Built ile Home blex tifamily(>4) Iter lt: Height: [	e:	ROOF MATERIALS: SHINGLE METAL Industrial Metal Corrugated WOOD Slate Cool Seal Needed Need Repair	Contact Name:	Relation: Wind Shielding: Well O Normal ( Home Leakiness: Tight O Medium ( Ventilated O No Orien Long Wall North O East O S	Day Phor Day Phor Exposed C Loose C Ventilated C G outh O West C	Type: -         Image: Type:
Outdoor Temp       Pre:         Outdoor Temp       Pre:         Wind Condition       Pre:         Blower       Door         Manometer       Used         Pre       and         Pre       and         Pre       Post:         Calibration       dates         Pre       Post:	Pre : Post: Pre : Post: CFM 50 AST : ASHRAE Target: ASHRAE: Required M Post: Post: Post	Image:       Image:         Image:       Image: <td< td=""><td>Pa:         imum CFM Red         eded:       Fan Cap         Pa:      </td><td>Orient Long Wall: North East S Base: luction: Fan Run/Hour Base: TAGES 45% 50 0 5501-7500 &gt; 70</td><td>outh OWest O</td><td>PRIMARY SOURC Unvented Heater Stove Primary Heating Electricity Natural Gas Propane Oil Wood Outdoor WH Close</td><td>E OF HEAT: Vented Gas Hea HVAC Fuel: Annual Cost: Est.% for Heating: High Use High Burden</td><td>ater Portable 110 V AC Windows 220V</td></td<>	Pa:         imum CFM Red         eded:       Fan Cap         Pa:	Orient Long Wall: North East S Base: luction: Fan Run/Hour Base: TAGES 45% 50 0 5501-7500 > 70	outh OWest O	PRIMARY SOURC Unvented Heater Stove Primary Heating Electricity Natural Gas Propane Oil Wood Outdoor WH Close	E OF HEAT: Vented Gas Hea HVAC Fuel: Annual Cost: Est.% for Heating: High Use High Burden	ater Portable 110 V AC Windows 220V

Louisiana Housing Corporation

Applicatio ClientNa	n #: me:					D.	ClientID:		Ass	essors						Date:	uisiana He poration
Wall Type	:		E	Exterio	or Type:	:	Exposure:	N	Existing	Insula	ation	A	dd Insulat	ion	MH I	nsulation	_
<ol> <li>Baloon Fr</li> <li>Platform I</li> <li>Masonry /</li> </ol>	ame Frame / Stone	4. Cinder 5. Adobe 6. Other	Block 1	1. Wood 2. Brick 3. Metal	l (Stone) l (Vinyl)	<ol> <li>4. Stucco</li> <li>5. Masonite</li> <li>6. Other</li> </ol>	<ol> <li>1. Exposed</li> <li>2. Buffered</li> <li>3. Attic</li> </ol>	W	1. None 2. Bln Cel 3. Bln Fib	ulose erglass	4. Rockw 5. Fibergla 6. Polysty	ool ass Batts rene / Other	<ol> <li>None</li> <li>Bln Cellul</li> <li>Bln Fiberg</li> </ol>	ose glass	1. Batt/ 2. Loos 3. Foar	/Blanket (in) e Fill (in) n Core (in)	
Walls	Wall	Туре	Stud S	ize	Exterio	r Type	Exposure	Orientation	W' /	Η'	Area	Exist. Insu	. Depth	Add I	nsul	МН Туре	/ Thick
WALL 01																	:
WALL 02																	:
WALL 03																	:
WALL 04																	
WALL 05																	
WALL 06																	
WALL 07																	:
WALL 08																	:
WALL 09									1								:
WALL 10					1			1									:

WindowTyp	be Slide	r	Fram	е Туре	Glazing	9	Interior Sha	de	Ext	. Shade	Leakiness	Num	ber	Retro	fit		
<ol> <li>Jalousie</li> <li>Slider</li> <li>Slider</li> <li>Fixed</li> <li>Door Wind</li> <li>Door Slider</li> <li>Skylight</li> </ol>	1. Hor 2. Vert 3. Left ow 4. Righ	zontal ical - Right it - Left	1. Wo 2. Me 3. Imj 4. CO	ood / Vinyl tal proved Metal LOR - B M W	1. Singl 2. Sngl. 3. Doub 4. Dbl.	e Pane P. W/ Storm ble Pane P. W/ Low E	1. Drapes 2. Drapes w/ 3. Blinds / Sha 4. None <b>Shad</b>	Shades ades <b>e</b>	1.   2. 9 3. / 4. ( 5.   6.	Low E Film Golar Screen Awning Carport Porch None	1. Tight 2. Medium 3. Loose 4. Very Loos	# of With Descr	windows the same iption	1. Eva 2. Add 3. We 4. Rep 5. Sol 6. Noi	Iluate J Storm eatherize blace ar Scrn ne		
Windows	Туре	Slide	r	Frame	Color	Glazing	Interior	Exterio	or	%Shade	Leakiness	Wall	Num	Retro	w '	н'	NOTES
WIND 01																	
WIND 02																	
WIND 03																	
WIND 04																	
WIND 05																	
WIND 06																	
WIND 07																	
WIND 08																	
WIND 09																	
WIND 10																	

			1			<b></b>									Cor	<b>uisiana Ho</b> rporation
Housing App	#:				ClientID:											
ClientNam	ne:			D	ay Phone:			As	sessors:					Da	te:	
Door Type			StormDoor	Number	Meas	sure	Swing	Lockse	t Air S	Seal		Thresho	old Oak/	Bumper	Hinge	Strike
<ol> <li>H-Core Woo</li> <li>S-Core Woo</li> <li>Insulated St</li> </ol>	od 4. Sngl Sli d 5. Dbl Pan teel	ding Glass e Glass	<ol> <li>Adequate</li> <li>Deteriorated</li> <li>None</li> </ol>	# of Doors With the s Description	ame 2. Re	pair place	<ol> <li>Right Hand</li> <li>Left Hand</li> </ol>	1. Dead 2. Knob 3. Com	Bolt         1. Ja           2. Q           50         3. S	amb Up 4 -Lon weep (M/E	. V-Seal (C/B) 3)	1. 3/4 Oa 2. 1 Oak 3. 1 Bum	ak 4.1 5.1/ nper 6.3	x 5/8 Bum /2 Bumper /4 Bumper	oer 1. Reg 2. NRF (B)	1. Reg 2. Lrg
DoorCode	DoorType	Area	StormDoor	WallCode	Number	Meas	ure Swing	Width	Height	Thick	Lockset	Air Seal	Thresh	Hinge	Strike	Viewer
DOOR 01																
DOOR 02																
DOOR 03																
DOOR 03 DOOR 04																
DOOR 03 DOOR 04 DOOR 05																

Mobile Home Ceiling

**Roof Color** 

1. Shaded

2. Normal

Color Insula Depth in R Value

**Roof Height at Center** 

1. Reflective

Exist Insula

1. Loose Fill

2. Foam Core

1. Batt/Blanket

Roof Type

2. Flat

3. Pitched

Туре

Cathedral %

1. Bowstring

Additional Framing

Type

1. Cathedral

2. Kneewall

3. Skylight

Centers

1. 16 in

2. 18 in

3. 24 in

Heat Sources 1. WH / Furn Туре

Sq ft.

0/C

#### Unfinished Attic

	AtticType		oistSpace	Тур	e Ma	aterial	
	1. Unfloore	ed	1. 16 in	1. Bat	ts 1.	Fiberglass	
	2. Floored		2. 18 in	2. Blo	wn 2.	Rockwool	
	3. Cathedral / Fla		3. 24 in	3. Otł	ner 3.	Cellulose	
	•		•	Exist	ing I	nsulatio	<u>o n</u>
AtticCode	AtticType	Joist Sp	Area	Туре	Materia	al Depth	R Value
UFA 01							
UFA 02							
UFA 03	3						

#### Finished Attic



			na Housing
Housing App#:	ClientID:		
ClientName:	Day Phone:	Assessors: Date:	
Foundation	s Floor Area (sq.ft)	Mobile Home Floor Eloor Joist Direction   Lengthwise	:
Foundation Type	Exist. Insul. R-Value	Floor:Wing Floor:Belly Floor:Wing Floor:Wing Widthwise	
<ol> <li>Conditioned</li> <li>Non Conditioned</li> <li>Vented Non Cond.</li> <li>Unintentionally Cond.</li> </ol>	Sill Joist Spacing (in)	Belly:or:Tarp:Wrap:     Yes       Steel:Chassis:     Is there a Skirt?       No	
5. Uninsulated Slab	Perimeter to Insul (ft)	Floor Wing Description Batt Insul. Location	
6. Insulated Slab 7. Exposed Floor	<b>_</b>	Joist Size (in) 1. Attached to flooring Location	
	F. Wall Height (ft)	Loose Insul (in) 3. Attached Under Joist Thickness	
FoundCode FoundType	Height Exposed (%)	4. None"	
FD 01	Perimeter (ft)	Floor Belly (Center) Desc. Batt Insul. Location	
FD 03	Exist. R-Value	Joist Size (in) 2. Between Joist Location	
		Loose Insul (in) 3. Attached Under Joist Thickness	
Foundation Insulation o	p <b>tions</b>	5. None	
Mobile Home Shell Walls MH Insulation 1. Batt/Blanket (in) 2. Loose Fill (in) 3. Foam Core (in)	MH Type / Thick       Enter the wall area not accessible for insulating.         Uninsulatable Area (sq ft)       Image: Constraint of the sector of th	Belly Configuration     Belly Condition       Square Belly     Square       Rounded Belly     Flat         Poor         Max Depth       Belly Condition         Square Belly         Flat         Poor         Max Depth         Belly Condition         Square         Flat         Square         Poor	n)
Windows Average Size	Number Facing Door	<u>rs</u> Average Size <u>Number Facing</u> Carport / Porch / Roof	
Width Height	North East	Width     Height     North     East     Width     Length	<u> </u>
	South West	South West Orientation N E S W	
Mobile Home Addit	Use the "A" suffix in the Wall, Wind Utilize the Wall, Window, and Door <u>Windows</u>	low, Door Code to signify a MH Addition; ie Wall01A, Win01A, D01A data collection pages, to record MH Addition information MH Addition - Floor Type Roof Color Roof Color	
Orientation North	East South West Average Size	t North East 2. Slab on Grade 1. Shaded	
	Addition Wall config	South     West	
MH Addition InsulMH1. Batt/Blanket (in)1. Ma2. Loose Fill (in)2. Ma3. Foam Core (in)3. All	Addition - Wall config ax Wall height at Interior wall ax Wall height in Rm center Addition Wall the same height Midthe Usight	Number Facing       Addition Floor Batt       Depth in       Exist Insula         1. Attach to flooring       1. Attach to flooring       1. Batt/Blank         2. Between Joist       Add inches       1. Loose Fill         3. Attach Under Joist       Add inches       2. Foam Cont	æt
MH Type / Thick Additio	The Interior Wall Max Width Width Heigh	South     Cast     4. None     Depth in       South     West     FlrLength     Width     Depth in	

																i i	Louisiana H Corporation	ousi
Ho	using Ap	pp#:				ClientID	:		] [									
	ClientNa	ame:				Day Phone	:		] ]	Assessors:						Date:		
Heati	ing Equip	oment Type			Fuel Type		Equipment	Location		Uninsulat	ed S	<u>uppl</u>	<u>y Du</u>	<u>icts</u>		Hoight if	Diamator	
1. G	ravity Fu	rnace	6. Heat Pum	р	1. Natural Gas	5. Oil	1. Heated	Space		Duct Type R	Rect/Ro	und	Leng	th	Width	Rectangular	if Circular	
2. Fo	orced Air	Furnace	7. V-Space h	eater	<ol><li>Electricity</li></ol>	6. Propane	2. Uncond	. Space										
3. Se	ealed Cor	nbustion	8. UnV-Space	e Heater	3. Wood	7. Coal	3. Uninter	tional Heated				<u>.</u>	-					
4. Fi	xed Elect	Resistance	9. V-Wall Fur	nace	4. Kerosene	8. Other												
5. Po	ortable El	lectric	10. UnV-Wall	Furnace					-									
	Primarv	,			1													
ΜН	Sys	SysCode	EquipType	FuelType	% Supplied	Equip Locati	on Manı	ufacturer	Mod	lel	Sq'	Watt	Amp	Volt		HSPF or	Yr.Purch.	
$\bigcirc$	$\bigcirc$	HS01													Heat	t	:	
$\bigcirc$	$\bigcirc$	HS02													Pum	p		
Õ	Õ	HS03													Detai	ls		
9	۲		1			1	1									-		
<u>Re</u>	quire	d Heat	ing Syste	em De	<u>tails</u>			<u>Mobile</u>	Н	<u>ome Heatin</u>	<u>g Sy</u>	stem	Det	<u>ails</u>				
Tee	ıt Haatin	a Linita	Condition				Location		-	tion Location		Sve	Code I	мн рі		MH Duct Insul		

Input Heating Units Condition		MH Duct Location	MH Duct Insulation Location	<u>s</u>	SysCode	MH Duct Loc	MH Duct Insul. Loc
1. No Input 4. Lbs/hr 1. Good 4. Broke	en (non-function	1. Floor	1. Above Duct 4. No Insulation	1 L	HS01		
2. kBTU/hr 5. CCM 2. Fair 5. None		2. Ceiling	2. Below Duct		HS02		
3. Gals/hr 3. Poor (functions	)	3. None	3. Around or Ductboard		HS03		

InputRating	(in heat units)	SS Eff. %	EquipCond.	Therm
				$\bigcirc$
				$\bigcirc$
				$\bigcirc$
	InputRating	inputRating (in heat units)	inputRating (in heat units) SS Eff. %	inputRating (in heat units) SS Eff. % EquipCond.

# rt<br/>mCO Analyzer Used Pre and Post Audit:Calibration Date Pre Post:

## Additional Heating System Details

Burner Condition	Pilot Condition	Elect. Serv. Switch
1. Good	1. Good	1. Good
2. Fair	2. Fair	2. Fair
3. Poor (working)	3. Poor (working)	3. Poor (working)
4. Broken (not working)	4. Broken (not working)	4. Broken (not working)

SysCode	BurnerCond	PilotCond	E.Serv.Switch	C/O levels	GasLeak	Cracked Heat Exchanger	Fuel Shut Off Not Present	Drip Leg Not Present	Therm.Type	Day Setting	Night Setting
HS01					$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$			
HS02					$\odot$	$\bigcirc$	$\bigcirc$	$\bigcirc$			
HS03					$\bigcirc$	Õ	$\bigcirc$	$\bigcirc$			

#### SysCode Additional Comments

HS01	
HS02	
HS03	

ClentName:       Day Phone:       Assessors:       Date:         Cooling System Details       ACO	Housing Ap	pp#:				Clien	ID:										Corporation
Cooling System Details           Could rate         AC Gode Additional Comments           1 Central         ACO	ClientNa	ame:				Day Pho	ne:		Assess	Sors:						Date:	
AC Unit Type 1: Gentral ACOAC	<u>C o o l i</u>	ing	<u>Syste</u> ı	n De	<u>tails</u>					<u>Mobi</u>	le Ho	ome Co	oling	Sys	tem D	etai	ls
1. Central       2. Window       1. Coor       1. Coor       1. Above but         3. Heat Pump       Acco	AC Unit Typ	ре	AC Code	Additiona	al Comments							Effic	iencyUnit	s Du	uctLocatio	ו Du	ctInsul.
Code         AC Type         AC Manufacturer         Area         Size         Or Year         Mobile         Capacity         Eff.         Eff. <t< td=""><td><ol> <li>Central</li> <li>Window</li> <li>Heat Pur</li> <li>Evaporation</li> </ol></td><td>mp htive</td><td>AC0 AC0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1. CC 2. EE 3. SE</td><td>DP 1 R 2 ER 3</td><td>. Floor . Ceiling . None</td><td>1. Abo 2. Belo 3. Arou 4. Non</td><td>ve Duct w Duct Ind Duct e</td></t<>	<ol> <li>Central</li> <li>Window</li> <li>Heat Pur</li> <li>Evaporation</li> </ol>	mp htive	AC0 AC0										1. CC 2. EE 3. SE	DP 1 R 2 ER 3	. Floor . Ceiling . None	1. Abo 2. Belo 3. Arou 4. Non	ve Duct w Duct Ind Duct e
AC01       D <thd< th=""> <thd< th=""> <thd< th=""> <thd< th=""></thd<></thd<></thd<></thd<>	AC Code	AC Type	AC Manufa	turer	AC Model #	Area Cooled (	Si iq') (kBT	ze U/hr) SE	Or Year ER Purchase	Primary	Mobile Home	Capacity (kBTU/hr)	Eff. Rating	Eff. Units	Ductl oc	Insul	% Cooled
AC02       Image: Construction of the state	AC01								:								
AC04       Image: Construction of the second s	AC02									$\bigcirc$	$\bigcirc$						
Image: Construction in the image of the image o	AC03 AC04										$\bigcirc$						
WHOLE HOUSE INFILTRATION REDUCTION / BLOWER DOOR         Comments:           Comment           Contrained           Location         Before         After           Location         Before         After           Location         Before <h colspan="2">Aft</h>		1						Addi	Mobile Home tional Comments		0						
Zonal Pressures (Test WRT House and WRT Outdoors )           Zone Tested         Before         After         WRT	Blower D	Door:	CFM F	eading			Post Blov	wer Doo	r:								
Zone Tested         Before         After WRT         WRT					·			P	A :								
Attic 1       Image: Construction of the state of the st	Zonal	l Pressure	es (Test WF	T House	e and WRT	 Outdoors )		P	A :								
Attic 2     Bellyboard     Image: Comment       Comment       Image: Comment     Location     Before     After     Location     Before     After       Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment       Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment       Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment       Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment       Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment       Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment       Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment       Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment       Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment     Image: Comment       Image: Comment     Image: Comment     Image: Comment     <	Zonal	l Pressure Zone T	es (Test WF `ested	T House	e and WRT Before RT WRT	Outdoors ) After WRT W House Ou	RT	Zone	A :	B	Before T W	RT WR	After T WI	RT			
Location         Before         After         Location         Before         After           ressure ling (PA)         I <td< td=""><td>Zonal</td><td>l Pressuro Zone T 1</td><td>es (Test WF <sup>°</sup>ested</td><td>T House</td><td>e and WRT Before RT WRT use Outside</td><td>Outdoors ) After WRT W House Ou</td><td>RT side Craw</td><td>P/ Zone /lspace</td><td>A :</td><td>B WR Hou</td><td>Sefore T W se Ou</td><td>RT WR tside Hou</td><td>After T Wi se Out</td><td>RT side</td><td></td><td></td><td></td></td<>	Zonal	l Pressuro Zone T 1	es (Test WF <sup>°</sup> ested	T House	e and WRT Before RT WRT use Outside	Outdoors ) After WRT W House Ou	RT side Craw	P/ Zone /lspace	A :	B WR Hou	Sefore T W se Ou	RT WR tside Hou	After T Wi se Out	RT side			
Image: Description       Location       Before       After       Location       Before       After       Location       Before       After         Integration (PA)       Image: Description (PA)       Image: Descri	Zonal Attic	l Pressure Zone T 1 2	es (Test WF <sup>-</sup> ested	T House	e and WRT Before RT WRT use Outside	Outdoors) After WRT W House On	RT side Craw Belly	Zone /lspace board	A :	B WR Hou	Before T W se Ou	RT WR tside Hou	After T WI se Out	RT side			
Image: Image of the second	Zonal Attic 2 Attic 2	I Pressure Zone T 1 2 ent	es (Test WF <sup>°</sup> ested	T House WI Ho	e and WRT Before RT WRT use Outside	J Outdoors) After WRT W House Ou	RT Side Craw Belly	Zone /lspace board	A :	B WR Hou	Sefore T W Se Ou	RT WR tside Hou	After T WI se Out	RT side			
Image (PA)     Image 2     Image 9     Image 16       3     10     17       4     11     18       5     12     19	Zonal Attic 2 Comme	I Pressure Zone T 1 2 ent I Test	es (Test WF <sup>°</sup> ested		e and WRT Before RT WRT Use Outside	Gutdoors) After WRT W House On	RT Craw Belly	Zone /lspace board	A : Tested Location	Before	Before T W Se Ou	RT WR tside Hou	After T WI Se Out	RT side	Before	2 Aft	ter
3     10     17       4     11     18       5     12     19	Zonal Attic 2 Attic 2 Comme	I Pressure Zone T 1 2 ent I Test	es (Test WF	T House	e and WRT Before RT WRT Use Outside	☐ Outdoors ) After WRT W House On On Before	RT Side Craw Belly	Zone /lspace board	A : Tested Location	Before	Before T W se Ou	RT WR tside Hou er 15	After T WI se Out Loca	RT side	Before	e Afi	ter
4     11     18       5     12     19	Zonal Attic Attic Comme Tre Pan ressure ing (PA)	I Pressure Zone T 1 2 ent I Test	es (Test WF	T House	e and WRT Before RT WRT use Outside	☐ Outdoors ) After WRT W House Ou	RT Craw Belly	Zone Zone board 8 9	A : Tested Location	Before	Before T W se Ou	er 15 16	After T WI Se Out Loca	RT side	Before	e Afi	ter
	Zonal Attic 2 Attic 2 Comme	I Pressure Zone T 1 2 ent Test	es (Test WF	T House	e and WRT Before RT WRT Use Outside Location	J     Outdoors )     After     WRT W     House On     On     On     Before     On     On	Craw Belly	Zone /lspace board 8 9 10	A : Tested Location	Before	e Aft	er 15 16 17 10	After T WI se Out Loca	RT side	Before	e Afi	ter
	Zonal Attic Attic Comme Tre Pan ressure ing (PA)	I Pressure Zone T 1 2 ent Test	es (Test WF	T House T House Ho Ho I I 2 3 4 5	e and WRT Before RT WRT Use Outside Location	Outdoors )  After WRT W House Ou  Before	RT       Craw       Belly	Zone Zone board 8 9 10 11 12	A : Tested Location	Before	Before T W se Ou e Aft	er 15 16 17 18 10	After T WI Se Out Loca	RT side	Before	e Afi	ter

Housing App#: ClientName:		ClientID Day Phone:	:	Asses	sors:				Date:	Louisiana Housin Corporation
B A S E L O A D S         Water Heater(s)         Fuel Type         Equipment Location         1. Natural Gas         2. Electricity         2. Uncond. Space	WH Code Manufact WH01 WH02 Input Units 1. kBTU 2. kW	If WH wra present, s	Model:	' of 1. F	Serial #:			Showe # of Sh Shower Us	r Heads nower Heads se (min/day) Average GPM	
3. Propane 3. Unintentional He	ated	Insul, Type	e insulated?	Original Tank	Water	Heater Cond	dition Burn		ı	
WH Code     Fuel Type     Equip.Loc.     R       WH01	tated Input Input Unit	s Gallons WH	Wrap Pipe Insul.	Insul. Thick.	nsul. Type G				CO Level	WH Stand
Refrigerator Style1. Top Freezer4. Sngl Door w/ F2. Side by Side5. Bottom Freezer3. Single Door6. Other	Manufacturer       Defrost       reezer     1. Automatic 3.       2. Manual     4.	Mode Ref Partial Auto Other 2. 3.	<b>frigerator Locatior</b> Heated Space Uncond. Space Unintentional Hea	Size cu ft	Ligh Room 1. Far 2. Kito 3. Livi 4. Reo	<b>Description</b> nily 5. Dir then 6. Bec ng 7. Bat : 8. Uti	<b>Syst</b> Loca ning 1. C droom 2. Fi throo 3. Ta ility	tion eiling 4. Wa oor 5. Clo able 6. Oth	Lamp T all 1. Stan oset 2. Floor her 3. Othe	<b>ype</b> dard r r
Available Space Dimesions         Height(in)         Width(in)         Depth(in)	Door Type     Single     Double	e Maker Hoor Swing Right Hand Left Hand	Freezer Type Top Bottom		Ligh Code LT02 LT02	Room Desc	Room Location	Lamp Type Q	Size Daunt. (watts)	Usage ) (hr/day)
ConsumptionLabel / Database Annual ConsumptionkWhr/yrRefrig Age1. < 5 Yrs.	tion Door Seal Condition Yrs. 1. Good Yrs. 2. Some Wear 3. Visible Gaps	Or Minut Meter Temp	ed Consumption res · kWh F	Defrost Manual Defrost Includes Defrost	LT0 LT0 LT0 LT0 LT0 LT0 LT0 LT0	5       4       5       6       7       3       9				

Housing Ap ClientNa	op#: ame:				D	ClientID: ay Phone:		Assessors:			Date:	Louisiana Ho Corporation
HEALT	ГН &	S A	FET	<u>Y</u>					Building SH	ELL		
Whol Alarms Needed Smoke Dete Quantity : CO Monitor Quantity :	e Hou	<b>J S E</b> Rm wit Rm v	Car h Heating vith Water Liv	bon Monoxi System (p Heater (p ing Area (p	ide Measurer pm) PRE: pm) PRE: ppm) PRE:	POST: POST: POST:	Attic Recessed Lights Chimney/Flue I Wiring/Electrica Inadequate Ver Water Leaks Pro-	s Present ncorect Shielding al Problems ntilation esent	Walls Wiring/Electrical I Water Leaks Pres Moisture Problem Lead Based Paint Asbestos in Siding	Problems ( ent ( s Evident ( is Likely ( g is Likely (	Crawlspace / Vapor Barrier Wiring/Electric Water Leaks F Plumbing Leal Moisture Prob	Basement Needed cal Problems Present ks Present blems Evident
Commen	its:				ppm) <u>PRE:</u>	POST:	<ul> <li>Moisture Proble</li> <li>Vermiculite Pres</li> <li>Other Problems</li> </ul>	ems Evident sent s	Other Problems Comments:	(	Other Problem	IS
<u>E q u i</u> Worse Case Date	e Condition Conducted Audit Ins Pre	<u>n</u> t Draft Me During pection Post	asurements SysCode HS0	; - SPACE H Outdoor Temp (F)	EATING SYS Draft (Pa or in H20)	TEM Spillage Time(sec)	CO Analyz Used Calibration Date Comments	Pre Post:	Cook S CO Mea CO Measure CO Measure	tove CC surement Ov ement Burner ement Burner	<b>Measure</b> en (ppm) PRE: r 1 (ppm) PRE: r 2 (ppm) PRE:	ments POST: POST: POST:
Worse Case	e Condition	O Draft Me	HS0 HS0 HS0	s - WATER	HEATING SY	STEM			CO Measure CO Measure	ement Burner ement Burner Gas Le	r 3 (ppm) PRE: r 4 (ppm) PRE: eak Present	POST: POST:
Date	Conducte Audit Ins Pre	d During pection Post	SysCode WH0 WH0 WH0	Outdoor Temp (F)	Draft (Pa or in H20)	Spillage Time(sec	) Comments		E x h a u s f KITCHEN Missing Non Operatio	t Fans onal nting	BATHROO Missing Non Opera	2 <mark>M 1</mark> ational Venting
Wood St Wood St Imprope Inadequ	tove / Fire	<b>irepla</b> place is l	ace Present	<u>Air-to-</u> © E:	Air Hea	Clothe Impro	<b>s Dryer</b> per Venting <b>anger</b> Operational		CFM PRE: PC BATHROOM Missing Non Operati	ost: <b>1 2</b> fonal enting	CFM PRE: 1 BATHROC Missing Non Opera Improper	POST: DM 3 ational Venting
							PAGE 8 of	9	CFM PRE: PC	OST:	CFM PRE: 1	POST:

PAGE 8 of 9

Housing App#: ClientName:	Include the locations of; Heaters, A/C Unit	S, Water Heaters, Attic Hatches, and Vents Normal - surrounded by trees / other bldgs Exposed

## Attachment B Instructions for Louisiana Energy Audit Data Collection Form

## Attachment B

## INSTRUCTIONS FOR LOUISIANA ENERGY AUDIT DATA COLLECTION FORM

This Data Collection Form is provided to demonstrate **<u>minimum</u>** data collection requirements for a Louisiana Weatherization Assistance Program (WAP) energy audit.

## **PAGE 1**

- Customer Information
  - 1. Enter customer's critical information: WAP *Application #, Name, Address, Parish, Unique Client ID, Precinct* (if necessary), *and Phone Number*.
  - 2. Enter *Contact Types'* information (landlord/owner).
  - 3. Enter Ownership, Occupants and Household Size, Ethnicity, Client Language, and Disability Type.

#### • Agency Information

- 1. Enter Agency/Parish information.
- 2. Enter Assessor (auditor) information.
- 3. *App. Date* (Appointment Date) = the current date.

#### • Dwelling Information

- 1. Enter Dwelling Setup, Dwelling Type, Roofing Type, Roof Materials, Siding Type, Wind Shielding, Home Leakiness and for manufactured homes walls Vented and Orientation of Long Wall.
- 2. Enter any and all health and safety *WARNINGS* associated with the unit. Document and provide unit's occupant with client education on H&S measures identified.

<u>Lead handout</u>: In all homes built before 1978 where weatherization work may disturb painted surfaces, the EPA pamphlet entitled *Protect Your Family from Lead in Your Home* must be given to the customer and documented.

<u>Moisture Problems</u>: Describe the nature and location of any indications of moisture problems including standing water, visible mold, or musty odors that could signal hidden mold.

- 3. Enter Cond. (Conditioned) Stories (one, two story).
- 4. Accurate *Year Built* of the unit (used for RRP Lead and Historic Preservation).

- 5. For manufactured homes, enter the *Length, Width* and *Height* (not including the hitch or tongue).
- 6. Enter the square foot area or *Floor Area Sq'*. For a house with a rectangular floor plan, the square foot area is the length of the house (in feet) multiplied by the width (in feet). For houses with additions or complicated floor plans, break up the floor plan into easy-to-measure rectangles and add the square foot area of each rectangle.
- 7. For the *Volume of Air* field, multiply the square foot area of the house by the ceiling height to determine the volume of the house in cubic feet.
- 8. Enter current *Outdoor Temp (Temperature)* during both the *Pre* and *Post* inspection. Complete the same for the *Wind Condition.*

#### • Blower Door Information

- 1. Enter CFM 50 Pascal (Pa) information with *Pre* reading, *Ring* used, *Pa*. reading, and *Baseline* used.
- 2. Enter *CFM 50 AST* (air sealing target) using the *Target Reduction Percentages* chart, and enter the *Minimum CFM Reduction* for the unit using the same chart.
- 3. Enter CFM 50 Pa information with *Post* reading, *Ring* used, *Pa*. reading, and *Baseline* used.
- 4. In the *Blower Door Manometer Used* fields, enter the pressure gauge manometer's serial number used for pre and post audit testing, and the *Calibration Date* of the manometer used for pre and post audit testing.

#### • ASHRAE Information

- Enter the ASHRAE 62.2 2016 target utilizing the residential energy dynamics calculator <u>https://www.redcalc.com/ashrae-62-2-2016/</u>. Enter the unit's ASHRAE data and use the calculator to find the air sealing target for installing an ASHRAE fan to be installed with 15 CMFs or greater.
- 2. If the blower door *CFM 50 AST* is below the *ASHRAE target*, then enter the ASHRAE *fan data* and *ASHRAE Required MVR*. If an ASHRAE *fan is needed*, then also enter *Fan Cap. (Captivity)* and if using a timer, enter *Fan Run/Hour* in minutes.

#### • Primary Heating Source and Primary Fuel Information

- 1. Enter the *Primary Source of Heat* and *Primary Heating Fuel*, and if necessary, estimate the *Annual Cost* for fuel (propane, oil) and the *Est. % (percent)* of fuel used for heating.
- 2. Enter whether the Outdoor (Water Heater) WH Closet is used by the unit.

#### Attachment B PAGE 2

#### • Customer Information

1. Enter customer's *Application #, Name, Unique client ID, Assessors,* current *Date,* and *Day Phone* number.

#### • Wall Information

- 1. Enter *Wall Type, Stud Size, Exterior Type, Exposure, Orientation, Width* (in feet), *Height* (in feet), *Area* (Length x Width), *Existing Insulation* type and *Depth*, and for insulation on walls of *Manufactured Homes: Type* and *Thickness*.
  - > Use this area to describe all exterior walls that are not part of the foundation
  - Use the naming "code" that matches the labeling in the sketches
  - Record the On Center (OC) spacing of studs in inches
  - Siding Type (i.e. vinyl, brick, stucco, etc.)
  - Buff Note if the wall is buffered (adjoins a non-conditioned space that is mostly airtight to the outdoors)
  - R-value as visually and physically verified for each stage (EA, CL, QCI)

#### • Window Information

- 1. Enter Window Type, Slider direction, Frame material, Color for solar screen, number of glass Glazing, Interior Shade, Exterior Shade, Percent Shaded (default window is 20%), air Leakiness, Wall orientation, Number on wall, Retrofit needed, Width, Height and Notes.
  - Use to describe all exterior windows
  - Glass glazing types are Single Pane, Double Pane, Triple Pane, and LowE
  - Note if there is a storm window (windows that are installed on the outside of the already-installed, primary house windows), and the window frame type Metal/Vinyl/Wood
  - Record the overall leakage of the component (Very Tight, Tight, Average, Leaky, Very Leaky). Remember that any leakage condition other than "Average" should have photo documentation.

#### PAGE 3

- Customer Information
  - 1. Enter customer's Application #, Name, Unique client ID, Assessors, current Date, and Day Phone number.

#### Attachment B PAGE 3 Continued

#### • Door Information

- 1. Enter door information as needed for replacement or energy audit modeling the *Type, Area* (in feet), *Storm Door, Wall Code, Number, Measure, Swing, Width, Height, Thickness, Lockset, Air Sealing* measures, *Threshold, Hinge* (non-removable pin), and *Strike* (regular or large).
  - Use this table to describe all exterior doors
  - Note if there is a storm door and the condition (good/bad G/B) of the Weatherstripping/Sweep (W/S)
  - Record the overall leakage of the component (Very Tight, Tight, Average, Leaky, Very Leaky). Remember that any leakage condition other than "Average" should have photo documentation

#### • Unfinished Attic Information

- 1. Enter unfinished attic information *Attic Type, Joist Space, Area,* existing insulation *Type, Material, Depth* (in inches), and average *R value.* 
  - Use this table to describe all attics above conditioned space or that will be above conditioned space when the weatherization is complete.

#### • Mobile Home Ceiling

- 1. Enter manufactured unit's ceiling information including roof *Type*, roof *Color*, existing *Insulation* type, *Depth Inches*, and *R value*.
- 2. Enter manufactured unit *Percentage of Cathedral* ceiling and *Roof Height* in feet at center.

#### • Attic Additional Framing Information

1. Enter additional framing information on attics/ceiling *Type, Square Feet, O/C* stud center in inches, *Heat Sources*, attic *Hatch* needs and *Stairbox* or attic stair tent.

#### • Finished Attic Information

1. Enter information on the four parts of a finished attics (bonus room in attic), *Area Type, Floor Area* in square feet, insulation *Type, Material, Depth and R value.* 

#### Attachment B PAGE 4

#### • Customer Information

- 1. Enter customer's *Application #, Name, Unique client ID, Assessors,* current *Date,* and *Day Phone* number.
- Foundation Information
  - 1. Enter information on Foundation Type, Foundation Insulation Type, Floor, Sills, and Foundation Wall Height.
    - Use this to describe all foundation walls, wall height, including crawlspaces, etc.

#### • Mobile Home Shell Information

- 1. Enter wall information on *Manufactured Home Insulation Type, Thickness* and any *Uninsulatable Area.*
- 2. Enter information on manufactured unit's Windows and Doors with Average *Width* and *Height* along with window and door *Numbers* and *Facing* wall orientation.
- 3. On manufactured units with carport or porch, enter the *Width, Length,* and *Orientation*.

#### • Mobile Home Floor Information

- 1. Enter information on manufactured units' *Floor Joist Direction* and *Skirting*.
- 2. Enter information on manufactured units' Floor Wing Description, *Joist Size, Loose Insulation* depth, *Location* of *Batt Insulation* (using the location codes) and batt insulation *Thickness*.
- 3. Enter information on manufactured units' Floor Belly Center, *Joist Size, Loose Insulation* depth, *Location* of *Batt Insulation* (using the location codes) and batt insulation *Thickness*.
- 4. Enter information on manufactured units' *Belly Configuration, Condition,* and *Maximum Depth* of *Belly Cavity's* insulation in inches.

#### • Mobile Home Additions Information

- 1. On manufactured units with additions, enter information on wall *Stud Size, Orientation,* and if walls are *Ventilated*.
- 2. Enter information on manufactured addition's *Insulation Type* and *Thickness*.
- 3. Enter information on manufactured addition's *Maximum Wall Height* and *Maximum Width*.

- 4. Enter information on manufactured addition's Windows and Doors with Average *Width* and *Height* along with window and door *Numbers* and *Facing* wall orientation.
- 5. Enter information on manufactured addition's *Floor Type, Length, Width, Joist Size,* and if floor is insulated, enter the floor insulation information *Depth* in inches of existing insulation and if *Added inches* of insulation is needed.
- 6. Enter information on manufactured addition's Ceiling *Joist Size, Roof Color, Existing Insulation,* and its *Depth* in inches.

## PAGE 5

#### • Customer Information

- 1. Enter customer's Application #, Name, Unique client ID, Assessors, current Date, and Day Phone number.
- Heating Equipment Type/Details Information
  - 1. Enter *Heating Equipment Type* (chart provided), *Fuel Type* (chart provided), % percent heat *Supplied, Equipment Location* (chart provided), *Manufacturer, Model* and *HSPF* or *Year* (if unit is a heat pump).
    - This table is used to record all data for heating systems. If the system is all electric, you will not record data in the test results that do not apply, but fill in all blanks with N/A.
    - > Be sure to record the percentage (%) of the home's floor area that the unit heats.
    - Record all heating systems used by the unit.
    - > Be sure to accurately record the model number of all units
  - 2. Enter information on Uninsulated Supply Duct Type, Length, Width, Height and Diameter.
  - 3. Enter information for Required Heating System Details: *Input Units* (chart provided), *Input Rating, Output Capacity, Steady State Efficiency %, Equipment Condition* (chart provided), and if a *Smart Thermostat* is used.
    - kBTU must be recorded for all systems. If Electric, convert kW to kBTU with this formula (kW x 3412).
    - SS Eff. % Steady State Efficiency percentage (SSE%) is the calculated efficiency that a combustion analyzer provides for the heating system. Record this to the first decimal place (0.0)

- $> 0^2/CO^2$  This data is useful for efficiency tuning and should be recorded when possible.
- CO Carbon Monoxide (CO) parts per millionth (PPM) Air Free (AF) and As Measured (AM).
- Spillage time Record in minutes and seconds (0:00) for each appliance that is vented.
- > Be sure to include a picture of all labels in the client file.
- 4. Enter Serial Number for the *CO Analyzer Used* for pre and post audit testing and the Analyzer's *Calibration Date Pre and Post audit*.
- 5. Enter Additional Heating System Details: Burner Condition (chart provided), Pilot Light Condition (chart provided), Electrical Service Switch (chart provided), CO levels ppm, Gas Leaks, Cracked Heat Exchanger, Fuel Shutoff Not Present, Drip Leg Not Present, Thermostat Type, Day and Night Setting and any Additional Comments.

#### • Mobile Home Heating Equipment Details Information

1. Enter heating system *Manufactured Home Duct Location* (chart provided) and *Manufactured Home Duct Insulation Location* (chart provided).

## **PAGE 6**

#### • Customer Information

- 1. Enter customer's Application #, Name, Unique client ID, Assessors, current Date, and Day Phone number.
- Cooling System Details
  - 1. Enter AC unit type (chart provided), Manufacturer, Model Number, Area Cooled square foot, Size kBTU, SEER and Year Purchased.
    - Record all of the systems that exist in the unit.
    - Record the type of units that exist Window or Central and whether the unit is only an Air Conditioner (A/C) or a Heat Pump (HP)
    - Be sure to record the Model Number if legible as this is the source of all the performance data for the unit. If the Model Number is not legible, then estimate the age to determine modeling inputs accurately.
    - ▶ kBTU should be accurately determined from the Model Number or label.
    - > Be sure to include a picture of all labels in the client file.

- 2. Enter Whole House Infiltration Reduction / Blower Door *Pre and Post* infiltration reduction leakage in *CFM*, *Pressure Difference* in *Pa*, and any *Comments*.
- 3. Enter Zonal Pressure Test with the attic, with reference to *House* and *Outside* for *Before* and *After*.
- 4. Enter optional Zonal Pressure Test with *Crawlspace* or *Bellyboard*, with reference to *House* and *Outside* for *Before* and *After*.
  - These tests are always conducted with the house either pressurized or depressurized by a blower door to 50 Pascals difference with reference to the outside. Primary zones to be tested are spaces that are usually outside the envelope, or that may be considered for sealing to the outside of the home.
- 5. Blower door subtraction method is not used, as duct sealing is included with infiltration reduction.
- 6. Enter Supply and Return pressure pan test *Location* and reading in Pa, *Before* and *After*, and the *Sum of Pressure Pan reading Pa* for manufactured homes. Record the pressure testing performed on the duct system with the blower door at 50 Pa WRT to the outside. Record an accurate location description to make testing repeatable and do not forget to test return ducts as well

## <u>PAGE 7</u>

- Customer Information
  - 1. Enter customer's *Application #, Name, Unique client ID, Assessors,* current *Date,* and *Day Phone* number.
- Baseload Information
  - 1. Enter Water Heater Manufacturer, Model, Serial Number, Fuel Type (chart provided), Equipment Location (chart provided), Rated Input, Input Units (kBTU or kW), Gallons (oil, propane), Water Heater Wrap present, Water Pipe Insulation, Tank Insulation Thickness and Type, Condition, Burner Condition, CO ppm and Comments.
    - Water heater closet or mechanical room must be at least 50 cubic feet in volume for every 1000 BTU/hour of rated input or combustion air venting must be added. For example, a 30,000 BTU/hour water heater would need at least 1500 cubic feet

(30,000/1000x50) of open space, which is equal to a room measuring 10 feet by 9 feet with an 8-foot ceiling.

- 2. Enter Shower Heads Numbers, Minutes shower used in a day, and shower Gallons Per Minute.
- 3. Enter Refrigerator Manufacturer, Model, Style (chart provided), Defrost cycle (chart provided), Location (chart provided), Size in cubic feet, Height, Width, Depth, Door Type, Door Swing, Ice Maker and Freezer Type.
- 4. Enter Refrigerator *Consumption kWhr per year, Age* (chart provided), *Door Seal Condition* (chart provided) or *Metered Consumption* information.
- 5. Enter Lighting Systems *Room Description* (chart provided), *Location* (chart provided), *Lamp Type* (chart provided), *Quantity, Size* in *watts* and *Usage in hours per day.*

## PAGE 8

- Customer Information
  - 1. Enter customer's *Application #, Name, Unique client ID, Assessors,* current *Date,* and *Day Phone* number.
- Health and Safety
  - 1. Enter Smoke Detector and CO Monitor Quantity.
  - 2. Enter Carbon Monoxide Measurements (ppm) in Room with Heating System, Room with Water Heater, Living Area, and Kitchen. Measure and record carbon monoxide level in the living area under NORMAL conditions.
- Building SHELL
  - 1. Identify Attic, Walls, and Crawlspace/Basement health and safety issues.
- Equipment (Health and Safety Combustion)
  - 1. On all combustion appliances, if possible, enter information on Worse Case Condition Draft Measurements of Heating Systems: *Date, Audit Inspection Pre* or *Post, CO Spillage Time* in *seconds* and *Comments.* BPI 1200 is the minimum testing standard for combustion appliances.

- 2. Enter Serial Number for the *CO Analyzer Used* for *Pre* and *Post* audit testing and the Analyzer's *Calibration Date Pre and Post audit*.
- 3. Enter whether *Wood Stove / Fireplace is Present, Improper Venting* or *Inadequate Combustion Air* exists
- 4. Enter whether *Clothes Dryer Improper Venting* exists.
- 5. Enter Air-to-Air Heat Exchanger (ERV. HRV) exist.
- 6. Enter oven *Cook Stove CO Measurements Pre* and *Post* and visually inspect burners for clean flame.
- 7. Enter *Kitchen* and all *Bathrooms* exhaust fans' *Operation, Proper Venting* and *Pre* and *Post CFM* reading.
  - Ventilation fan information should be collected for all exhaust/supply fans that are intended to be included in ASHRAE 62.2-2016 calculations. This includes every kitchen and every full bath (meaning contains shower or bathtub).
  - Note whether or not the fan is properly vented to the outside, if there is an Operable Window in the room where it exists, whether a fan will be added to the room by the WAP work order, and record the measured CFM at each stage of the project.

#### PAGE 9

- Customer Information
  - 1. Enter Housing Application Number and Client Name.
  - 2. Draw the unit footprint (floor plan as viewed from above) in the space provided. Record unit's *dimensions* and *location* of *windows* and *exterior doors*. Include location of *heaters*, *A/C units*, *water heaters*, *attic hatches*, *venting*, unit's *shielding* and *exposure*. Also, note location of any obstructions or construction details that might complicate insulation or air sealing work. Be sure to note the cardinal directions on the footprint drawing.

## Attachment C Louisiana Energy Audit Review Checklist

Job	o Numb	per:		QCI Name (Print	nt)
Init	ial Auc	ditor:		QCI Certificate #	#
			FIELD D		TION
No	Yes		Documentation		Notes (if needed)
		Are legit diagnost	ble photos available that validate all dat tic testing results, and equipment labels	ta entry, s?	
		Are all fi legibly fi	elds in the data collection form comple illed out?	tely and	
		Does for dimension	otprint drawing of each floor contain ad ons?	equate	
		Is combined in the second of t	ustion safety testing (CO, CAZ, SSE, e d in the Home Energy Assessment Che and supported by photos?	tc.) data ecklist	
		Do legib	le photos of all four sides of the dwellin	ng exist?	
No	Yes		Work Order		Notes (if needed)
		All identi are ente	ified costs (CFL/LED bulbs, flow restric ered	tors, etc.)	
		Are there include i	e any measures in the work order that in the WA software energy audit outcor	are not ne?	
		Do all m R-value,	easures in the work order contain a tar , U-value, etc.)?	rget (CFM,	
		Does the Grantee	e work order contain references to the Field Guide?	SWS or	
No	Yes		ASHRAE		Notes (if needed)
		Does the	e ASHRAE calculation include the kitch	nen?	
		Is ASHR	RAE calculation use all full and ¾ bathro	ooms?	
		Is the bunnumber	uilding height used in agreement with p of conditioned floors?	hotos and	
		Does the target as	e ASHRAE calculation use the same C s the software audit inputs?	FM50	
		Does the condition	e calculation use the same square foot ned space input into the audit software	age as the ?	
		Is the oc one?	ccupant number used, less than bedroc	oms plus	
		Is more	than one new fan installed in this home	e?	

Envelope Audit Data							
Subspace:							
Sq.Ft.:	#Floors:						
	Blower	Attic	Walls	Floor/Sub			
	Door	R	R	R Value			
	CFM	Value	Value				
Pre-							
Wx							
Target							
Post-Wx							
QCI							
Initials							

	ASHRAE Compliance							
Height:		# Bedroo	oms:					
Occupancy	:	ASHRA	E REDCa	lc:				
	Kitchen	Bath	Bath 2	Dwelling				
	CFM	CFM	CFM	Unit Fan				
				CFM				
Pre-Wx								
Target								
Post-Wx								
QCI								
Initial								

		Audit Software Data Entry								
No	Yes	Audit Software Settings	Notes (if needed)							
		Was the correct modeling tool used for the housing type?								
		Are the correct setup and supply libraries selected?								
		Is the correct weather location selected?								
		Are the heating/cooling efficiencies correct type??								
		Are the fuel costs correct for the region?								
		Is the conditioned square footage input consistent with the HEAC and footprint drawing?								
		Do enable measures match Louisiana policies?								
No	Yes	General Audit Results	Notes (if needed)							
		Are all ECM and cumulative SIRs 1.0 or greater?								
		Are all measures in the work order listed in the Recommended Measures Report?								
		Do any heating/cooling/ have an SIR greater than 3?								
		Are pre/post retrofit energy estimates savings more than 30%.?								
No	Yes	Walls	Notes (if needed)							
		Do opposing walls (N/S or E/W) gross square footage match each other?								
		Do exterior exposures match pictures and footprint drawing (buffered, outside, etc.)?								
		Do exterior siding type(s) match photos?								
		Are the walls correctly oriented in the model (N/S/E/W)?								
		Is R-value input consistent with age of home and depth of wall cavity?								
		Is the added insulation type and R-value correct (cellulose, fiberglass, etc.)?								
		If a buffered wall exists, is it modeled correctly??								
		If MH, are conditioned addition walls entered into audit?								
No	Yes	Windows/Doors (W/D)	Notes (if needed)							
		Are any windows input as shaded more than 20%?	· · · · ·							
		Does total number of W/D match HEAC/photos?								
		Are any W/D leakages input as loose or very loose?								
		Replacement W/D U-values match program guidance?								
		Are W/D assigned to correct walls per HEAC/photos?								
		Do storm W/D inputs match HEAC/photos?								
		Did the auditor force replacement of any W/D?								
		Are any W/D replaced using air sealing, IRM, or H&S funds?								
No	Yes	Attics	Notes (if needed)							
		Is the total attic sq.ft equal to the total foundation sq.ft?								
		Is the existing attic insulation input into model consistent with photographic documentation?								
		Is the most cost-effective insulation R-value added?								

		Are all four components of a finished attic modeled?	
		Does roof type input match the photos?	
No	Yes	Foundations	Notes (if needed)
		Is the foundation sq.ft more than the attic sq.ft?	
		Is the correct foundation type entered (i.e. conditioned/unconditioned, vented/unvented, insulated/uninsulated, etc.)?	
		Does the foundation insulation level input match the photo documentation and HEAC?	
		Does the perimeter input match the HEAC and footprint?	
		Is adding insulation considered for the thermal boundary?	
		Does foundation height input match photos?	
No	Yes	Heating	Notes (if needed)
		Are all existing heating systems entered into the audit?	
		Existing heating system fuel matches HEAC.	
		Do audit inputs indicate heating systems heat more than 100% of the conditioned space?	
		Is the efficiency input for the heating system within 5% of original design?	
		Does the efficiency input match the photo documentation of the testing?	
		Does the input and output in the audit match the appliance data plate?	
		Is the correct efficiency metric used (i.e. SSE, AFUE, HSPF, etc.) for the system type?	
		Is replacement system information accurate (AFUE, HSPF, Cost, etc.)?	
No	Yes	Cooling	Notes (if needed)
		Are all existing cooling systems entered into the audit?	
		Do audit inputs indicate cooling systems cool more than 100% of the conditioned space?	
		Is the efficiency input (SEER, EER) for the existing cooling system consistent with the appliance data plate?	
		Is the system size (BTU) consistent with the appliance data	
		Is replacement system information accurate (SEER, EER, BTU, Cost, etc.)?	
No	Yes	Infiltration	Notes (if needed)
		Do the pre-audit blower door inputs match the photo documentation and the HEAC?	
		Is the infiltration target correctly calculated based on the documented Louisiana target method?	
No	Yes	Duct Sealing	Notes (if needed)
		Is selected test method correctly input?	
		Are duct testing pressures consistent with the method chosen?	

		Are pre and post pressure pan supply and return reduction documented in the HEAC??					
		Is the duct sealing target consistent with Louisiana guidance (less than 2 pa)?					
No	Yes	Water Heating	Notes (if needed)				
		Existing equipment information, fuel, and location match field data collection					
		Existing water heater wrap and water heater pipe insulation match data collection					
No	Yes	Refrigerator	Notes (if needed)				
		Audit contains legible photo of refrigerator data plate?					
		Replacement refrigerator considered meets standards?					
		If metered, is there a legible photo of metered data?					
No	Yes	Lighting	Notes (if needed)				
		Are any bulbs input as used more than 5 hours/day?					
		Are replacement wattages consistent with bulb type?					
		Is installed cost more than \$5/bulb?					
No	Yes	Incidental Repair Measures (IRM)	Notes (if needed)				
		Are all Incidental Repairs included in the cumulative SIR calculation?					
		Do all Incidental Repairs include comments that detail the specific ECM they are protecting?					
		Do any measures have additional costs input?					
		If yes, are there related comments describing why?					
No	Yes	Health and Safety Items (H&S)	Notes (if needed)				
		Are all installed H&S measures allowed per current, approved H&S plan?					
		Does H&S expenditure exceed the cost of ECMs?					
No	Yes	Ancillary Measures	Notes (if needed)				
		Are all "ancillary" measures included in their related ECM's cost?					

No	Yes	Additional Monitoring Questions	Notes (if needed)
		Are all invoiced costs contained in the Recommended Measures (RM) Report?	
		Do any invoiced costs exceed the RM costs?	
		Are any potential ECM opportunities missed?	
		Is there photo documentation of every installed measure in the QCI's photo log?	

QCI/Monitor Signature

## **<u>Attachment D</u>** Enabled Library Measures for Louisiana NEAT Audits

- Building Insulation Attic R11, R19, R30, R38 and R49 \*\*
- Building Insulation Fill Ceiling Cavity \*\*
- Building Insulation Sillbox Insulation
- Building Insulation White Roof Coating
- Building Insulation Floor Insulation R11, R19, R30, R38
- Building Insulation Wall Insulation \*\*
- Building Insulation Kneewall Insulation
- Building Insulation Duct Insulation
- Doors and Windows Window Sealing
- Doors and Windows Door Replacement
- Doors and Windows Storm Windows
- Doors and Windows Window Replacement
- Doors and Windows Low E Replacement
- Doors and Windows Window Shading (Awning)
- Doors and Windows Sun Screen Fabric
- Doors and Windows Window Film
- HVAC System Furnace Tune-up
- HVAC System Replace Heating
- HVAC System High Eff Furnace
- HVAC System Smart Thermostat
- HVAC System Tune-up AC
- HVAC System Replace AC
- HVAC System Install/Replace Heatpump
- Baseload Lighting Retrofits \*\*\*
- Baseload Refrigerator Replacement
- Baseload Water Heater Tank Insulation
- Baseload Water Heater Pipe Insulation
- Baseload Low Flow Showerheads

\*\*DOE approved lifetime measure update to 30 years under LHC supervision and approval.

\*\*\*DOE approved lifetime measure update to 20 years under LHC supervision and approval.

## Attachment E Instructions for Measuring Refrigerator Energy Consumption

A recording watt-hour meter is used to measure refrigerator energy consumption. At least **two hours** are needed to accurately measure refrigerator energy consumption.

If the refrigerator is an automatic defrost model, an inaccurate reading could result if the refrigerator goes into the electric defrost mode during the test period. The defrost cycle timer must be adjusted to prevent the defrost cycle from running during the test period.

The defrost cycle timer is a small electrical box that is usually located behind the front kick plate, on the rear of the refrigerator (back) and/or inside the mail compartment behind the lighting panel.



- 1. Access the defrost timer and advance the pinion shaft on the timer. This pinion shaft usually has a screwdriver slot to allow manual advancement of the defrost timer.
- 2. Turn the pinion shaft clockwise (a counter-clockwise turn may break the defrost timer) until you hear a click. This should turn on the refrigerator's defrost cycle.
- 3. Verify an increase in energy consumption with the watt-hour meter.
- 4. Turn the pinion shaft 10 to 20 degrees further until the timer clicks loudly again. This turns the defrost cycle off.
- 5. Verify this with the watt-hour meter.
- 6. Start the watt-hour metering at this point, as the defrost timer won't call for defrost cycle for several hours.
- 7. Meter the refrigerator at least two hours and avoid opening the refrigerator during testing.
- 8. Read the kilowatt/hours of consumption measured.
- 9. Divide this number by the number of hours in the test. This will be the kilowatt consumption in an hour.
- 10. Multiply this number times the total number of hours in a year 8760 hours.
- 11. The product of the calculation will be annual metered kilowatt-hour consumption of the refrigerator.

## Attachment F HEATING and COOLING EQUIPMENT EFFICIENCIES



Weatherization and Intergovernmental Programs Support

Weatherization Assistant NEAT/MHEA Support material:

https://weatherization.ornl.gov/support-material/

02 ( ) // https://weatherization.oml.gov/support-material/	- 🖒 Search	- ⊔ ×
🥵 Building Performance Institute, 🚳 Calculation Methodology - Ho 🧔 NEAT/MHEA SUPPORT MAT 🗴 1	- 1	
SOAK RIDGE	About ORNL	
Weatherization and Intergovernmental Programs Support	Search Search	
HOME WEATHERIZATION ASSISTANT ~ EVALUATIONS ~	<ul> <li>FIELD STUDIES</li> <li>PUBLICATIONS - ABOUT US</li> </ul>	5 v
NEAT/MHEA SUPPORT MATERIAL		
Click on the links below to obtain support material relevant to the use of the National Energy Audit Tool (NEAT) and the Material relevant to the use of the National Energy Audit Tool (NEAT) and the Material relevant to the use of the National Energy Audit Tool (NEAT) and the Material relevant to the use of the National Energy Audit Tool (NEAT) and the Material relevant to the use of the National Energy Audit Tool (NEAT) and the Material relevant to the use of the National Energy Audit Tool (NEAT) and the Material relevant to the use of the National Energy Audit Tool (NEAT) and the Material relevant to the use of the National Energy Audit Tool (NEAT) and the Material relevant to the use of the National Energy Audit Tool (NEAT) and the Material relevant to the use of the National Energy Audit Tool (NEAT) and the Material relevant to the use of the National Energy Audit Tool (NEAT) and the Material Relevant to the use of the National Energy Audit Tool (NEAT) and the Material Relevant to the use of the National Energy Audit Tool (NEAT) and the Material Relevant to the use of the National Energy Audit Tool (NEAT) and the Material Relevant to the use of the National Energy Audit Tool (NEAT) and the Material Relevant to the use of the National Energy Audit Tool (NEAT) and the Material Relevant to the use of the National Energy Audit Tool (NEAT) and the Material Relevant to the use of the National Energy Audit Tool (NEAT) and the Material Relevant to the use of the National Energy Audit Tool (NEAT) and the Material Relevant to the use of the National Energy Audit Tool (NEAT) and the Material Relevant to the use of the National Energy Audit Tool (NEAT) and the National Energy Audit Tool (N	lanufactured Home Energy Audit (MHEA).	
Window Leakiness Guidelines - Guidelines on how to determine the degree of leakiness associated with windows based on all windows in the "Leakiness" field found under the Windows tab of NEAT and MHEA.	d on the type of window. The degree of leakiness must be in	nput
United Inch Best Practices Calculator – Calculator to determine a cost to be entered in the Additional Cost field found o estimated installation cost for windows and storm windows (which is based on a cost per square foot of window area) and commonly used by installation manufacturers and installers).	on NEAT's Window form to adjust for differences between N d an installation cost based on United Inches (which is more	IEAT's e

The following pages are the only DOE approved Heating and Cooling Equipment Efficiencies Tables for use with Weatherization Assistant based on unit's age.

#### LOUISIANA WEATHERIZATION ASSISTANT - NEAT

## Attachment F

## DOE approved Heating and Cooling Equipment Efficiencies Tables for use with Weatherization Assistant based on unit's age

		1			
Manufactured	Central Air Condition or Heat Pump	ner Room or W	Room or Window Air Conditioner		
Date	(SEER)	(EER)	(SEER) <sup>1</sup>	(SEER) <sup>2</sup>	(HSPF)
<1970	6.0	6.0	5.5	6.5	5.0
1970	6.0	6.0	5.5	6.5	5.0
1971	6.1	6.0	5.5	6.5	5.2
1972	63	6.0	5 5	6.5	5.2
1973	6.5	6.1	5.6	6.7	5.3
1974	6.6	6.3	5.7	6.8	5.4
1975	6.8	6.4	5.9	7.0	5.4
1976	7.0	6.5	6.0	7.1	5.5
1977	7.2	6.7	6.1	7.3	5.6
1978	7.4	6.8	6.2	7.4	5.6
1979	7.5	6.9	6.3	7.6	5.7
1980	7.7	7.0	6.4	7.8	5.8
1981	7.9	7.2	6.6	7.9	5.8
1982	8.1	7.3	6.7	8.1	5.9
1983	8.2	7.4	6.8	8.2	6.0
1984	8.4	7.6	6.9	8.4	6.1
1985	8.6	7.7	7.0	8.5	6.1
1986	8.8	7.8	7.1	8.7	6.2
1987	9.0	8.0	7.3	8.8	6.3
1988	9.1	8.1	7.4	9.0	6.3
1989	9.3	8.2	7.5	9.2	6.4
1990	9.5	8.3	7.6	9.3	6.5
1991	9.7	8.5	7.7	9.5	6.5
1992	9.9	8.6	7.8	9.6	6.6
1993	10.0	8.7	8.0	9.8	6.7
1994	10.2	8.9	8.1	9.9	6.7
1995	10.4	9.0	8.2	10.1	6.8
1996	10.6	9.0	8.2	10.1	6.9
1997	10.7	9.0	8.2	10.1	6.9
1998	10.8	9.0	8.2	10.1	7.0
1999	10.9	9.0	8.2	10.1	7.1
2000	11.0	9.25	8.4	10.4	7.2
2001	11.1	9.5	8.7	12.1	7.2
2002	11.1	9.75	8.9	11.0	7.3
2003	11.2	9.75	8.9	11.0	7.3
2004	11.6	9.75	8.9	11.0	7.4
2005	11.9	9.75	8.9	11.0	7.5
2006	12.3	9.75	8.9	11.0	7.6
2007	12.7	9.75	8.9	11.0	7.6
2008	13.0	9.75	8.9	11.0	7.7
>2008	13.0	9.75	8.9	11.0	7.7
fan runs continuously	~~				

#### **LOUISIANA WEATHERIZATION ASSISTANT - NEAT**

#### Attachment F Home Energy Saver Equipment Efficiencies

Lawrence Berkeley National Laboratory http://hes-documentation.lbl.gov/calculation-methodology

#### Heating and Cooling Equipment Efficiencies - Legacy System

In the detailed inputs level of the model, users can select the purchase year for their heating and cooling systems as an alternative to entering an efficiency value for the equipment. In these cases, we derive a shipment-weighted efficiency based on the purchase year of the equipment. A shipment-weighted efficiency is the average efficiency for all units sold within a particular year weighted by the number of units in each efficiency bin (AHAM 1996). Efficiencies for furnaces are measured as AFUE, or Annual Fuel Utilization Efficiency rating, which represents the seasonal or annual efficiency of the furnace. Heat pumps efficiency is shown as HSPF, Heating Seasonal Performance Factor.

The cooling efficiency for Central Air Conditioners and Electric Heat Pumps are rated by the seasonal efficiency of the equipment or SEER. Room Air Conditioners are rated by EER or Energy Efficiency Ratio, the ratio of the cooling output (in BTU) divided by the electrical energy consumption (in watt-hours).

Green shaded values did not have data available so the last available year is copied forward.

Yellow shaded values did not have data available so the first available year is copied backward.

#### Heating Equipment Efficiencies

Y

ear	Gas	Electric	Oil	Propane	Gas	Oil	Heat	Wall
	Furnace	Furnace	Furnace	Furnace	Boiler	Boiler	Pump	Furnace
	(AFUE)	(AFUE)	(AFUE)	(AFUE)	(AFUE)	(AFUE)	(HSPF)	(AFUE)
1970	60.0	98	70.0	60.0	70.0	72.0	6.21	50.0
1971	61.4	98	71.8	61.4	71.2	73.6	6.21	54.8
1972	62.7	98	73.6	62.7	72.3	75.2	6.21	59.5
1973	62.7	98	73.6	62.7	72.3	75.2	6.21	59.5
1974	62.7	98	73.6	62.7	72.3	75.2	6.21	59.5
1975	65.8	98	73.6	62.7	72.3	75.2	6.21	59.5
1976	66.1	98	74.1	63.0	72.3	75.2	6.21	59.5
1977	66.4	98	74.5	63.3	72.3	75.2	6.21	59.5
1978	66.7	98	75.0	63.6	72.3	75.2	6.21	59.5
1979	68.7	98	75.5	64.8	72.3	75.2	6.21	59.5
1980	70.6	98	76.0	65.9	72.3	75.2	6.21	59.5
1981	70.4	98	76.8	67.1	77.4	77.4	6.21	63.1
1982	70.3	98	77.5	68.4	77.4	77.4	6.21	63.1
1983	70.1	98	78.3	69.6	77.4	77.4	6.20	63.1
1984	72.6	98	78.6	73.0	77.4	77.4	6.36	63.1
1985	72.9	98	78.6	73.8	77.4	77.4	6.39	63.1
1986	73.7	98	79.6	74.3	78.2	81.6	6.55	64.2
1987	74.3	98	79.8	75.1	78.2	81.6	6.71	64.2
1988	74.9	98	80.4	75.8	78.2	81.6	6.88	64.2
1989	74.7	98	80.4	75.5	79.7	83.1	6.92	65.6
1990	76.7	98	80.3	75.7	79.7	83.1	7.03	65.6
1991	77.5	98	80.8	76.9	79.7	83.1	7.06	65.6
1992	82.1	98	80.8	83.2	79.7	83.1	7.10	65.6
1993	82.4	98	80.9	83.8	79.7	83.1	7.10	65.6
1994	82.4	98	80.9	83.9	79.7	83.1	7.10	65.6
1995	82.3	98	80.9	84.1	79.7	83.1	7.10	65.6
1996	82.7	98	80.9	84.1	79.7	83.1	7.40	65.6
1997	82.9	98	80.9	84.1	79.7	83.1	7.10	65.6
1998	82.6	98	80.9	84.1	79.7	83.1	7.40	65.6
1999	82.6	98	80.9	84.1	79.7	83.1	7.40	65.6
2000	82.6	98	80.9	84.1	79.7	83.1	7.40	65.6
2001	83.1	98	80.9	84.1	79.7	83.1	7.40	65.6
2002	83.1	98	80.9	84.1	79.7	83.1	7.40	65.6
2003	83.5	98	80.9	84.1	79.7	83.1	7.40	65.6
2004	83.6	98	80.9	84.1	79.7	83.1	7.40	65.6
2005	83.9	98	80.9	84.1	79.7	83.1	7.40	65.6
2006	84.0	98	80.9	84.1	79.7	83.1	7.90	65.6
2007	84.1	98	80.9	84.1	79.7	83.1	7.90	65.6
2008	84.8	98	80.9	84.1	79.7	83.1	7.90	65.6
2009	84.8	98	80.9	84.1	79.7	83.1	7.90	65.6
2010	84.8	9.8	80.9	84.1	79.7	83.1	7 90	65.6

## Attachment G

## Instructions for HVAC Supply-Return Duct Testing and Duct Sealing

- 1. Use pressure pan testing to help identify leaky or disconnected central HVAC ducts outside the conditioned space.
- 2. Pressure pan testing is not to be used if HVAC ducts are located in conditioned space.
- 3. Setup the house to run standard blower door testing with house setup in winter mode.
- 4. Turn off central HVAC system.
- 5. Temporarily seal any outside fresh-air intakes to the HVAC duct system.
- 6. Open garages, attic or crawl spaces as much as possible to outdoors (prevent secondary air barrier).
- 7. Connect pressure pan hose to input tap on the manometer.
- 8. Pressure pan readings will be taken at each supply and return register of central HVAC system.
- 9. Depressurize house (in winter mode with open interior doors) with blower door to -50 or -25 Pascals with reference to outdoors.
- 10. With blower door running, place the pressure pan completely over the HVAC supply or return to form an air tight seal.
- 11. Record the Pascal reading on pressure pan hose connected manometer channel, which should be a positive number.
- 12. If HVAC return or grill is too large for pressure pan, seal the grill with tape (for air tight seal). Insert a pressure probe through the tape and record reading.
- 13. Repeat this test for each HVAC supply and return.
- 14. If HVAC ducts have no leakage to the outside, the pressure pan reading will be zero (0) Pascals. Pressure pan measurements higher than two (2) Pascals will require investigation and sealing of air leaks in central HVAC supply and return ducts.
- 15. If HVAC duct/return air sealing is performed on a unit incurring a cost, document pre and post pressure pan reading's reduction.

## Attachment H Additional ASHRAE 62.2 2016 Guidance

Louisiana uses the ASHRAE 62.2 2016 advanced standards for indoor air quality. All Louisiana WAP ASHRAE calculations are required to use the Residential Energy Dynamics website.

#### https://www.redcalc.com/ashrae-62-2-2016/

Use **only** the following data audit input for the **Number of Occupants** box in the ASHRAE 62.2 2016 calculation web page:

Use the greater of:

- Number of bedrooms in the unit plus one (i.e. three bedrooms + 1 = 4), or
- Number of occupants in unit

**Heater/Light/Vent (HLV) Combination Fans** are <u>not allowable</u> under DOE WAP or ASHRAE. It is considered a secondary heat source.

A whole-building ventilation fan or continuous local exhaust fan shall be rated for sound at a maximum of 1.0 sone.

**Demand-controlled local exhaust fans** shall be rated for sound at a maximum of 3.0 sones.

## Attachment I

## Instructions for Importing and Exporting NEAT WDZ Files

#### Exporting and Sending NEAT WDZ Files

- 1. Create a folder on your desktop that you want to store the file in.
- 2. Have an existing client (or create a client) with a complete audit. Make sure to run that audit if you want the fuel indices to be shown.
- 3. Go to Data Link.
- 4. Go to Import/Export Data. Select With another MSaccess Database.
- 5. Click Go.
- 6. In the upper right hand corner, click **Browse**. (Make sure you do not create a password.)
- 7. Select the folder you created in Step 1.
- 8. Name the file to be exported "Year Agency Client Name".
- 9. Below the file name, click **Save as type** and select **Zipped Weatherization Databases** (\*.wdz).
- 10. Make sure that Create New Blank Database is selected and click Ok.
- 11. On the left side of the screen, select the client that you are certain has the most recent set-up library.
- 12. In the center of the screen, click **Export.**
- 13. Now go to the folder that you stored the file, and you should see the file there. Copy the file to be attached to the email.

#### Importing Set-Up WDZ Files

- 1. Locate the folder where the agency library file is located.
- 2. Open WA 8.9 NEAT/MHEA Software Program 3. Go to Data Link.
- 3. Go to Import/Export Data. Select With another MSaccess Database.
- 4. Click **Go**.
- 5. In the upper right hand corner, click **Browse**. (Make sure you do not create a WDZ password.)
- 6. Select the folder you located on Step 1.
- 7. Click the file you want to import into WA 8.9. On the right side of the screen, select the file you would like to import.
- 8. In the center of the screen, click **Import.**
- 9. The agency library file and client submitted should now be available to view in the WA 8.9 NEAT/MHEA Software Program.