MN WAPLink User Guide

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Weatherization Works

COMMERCE DEPARTMENT
DIVISION OF ENERGY RESOURCES

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Section 1: Program Management

Tasks/Alerts

1. Click on Today's Tasks/Alerts from the lefthand navigation pane.
2. From there you can Add or Complete tasks
    a. To delete, click Complete to bring up the list of tasks, select the tasks(s), click Save
    b. To Add a task, click Add, enter the task details, click Save

Agency Programs

This function will not be used by Minnesota

Email Setup: (State function only currently)

The purpose of this module is to identify and alert staff, via email, when certain financial management functions have been conducted. Notify Commerce when changes are needed.

Add an Email Alert

1. Go to My Agency Setup on the left navigation pane
2. Click on Email Setup
3. Click on the line item
4. Add Email Recipients(s), separated by a comma
5. Click Save
6. Repeat for each line item

Edit Email Alerts

1. Follow steps 1 – 3
2. Highlight the email address
3. Click delete
4. Click Save

Email Templates

Purpose: To set up email templates to send with work orders or communicate with a vendor.

Create a template

1. Go to My SP Setup
2. Click on Email Templates
3. Click New
4. Enter Template Name
5. Enter Template Type
6. Type the message into the text box
7. Click Save

Access the template:

1. Go to Waitlist
2. Click on the client
3. From the tab that opens, click on the mailbox icon
4. Enter the From email address
5. Enter the To email address
6. Enter the Subject Line
7. Choose the Template
8. Click Show for font styles and modification
9. Click Send

Priority Point Set Up

The primary priority points are setup by Commerce based on information provided by each Service Provider. Additional points can be added by the SP following WAP Policy 2.2.

To set up additional points:

1. Go to WAPLink
2. Click on Settings
3. Click on WL Add Points
4. Click New
5. Enter the Category (description of the priority)
6. Enter Point Text (name)
7. Enter Additional Points (point value)
8. Enter Point Ordering (priority order)
9. Click Save

Add Points to client record

1. Click on the client
2. Click Add Points
3. Choose the points to add
4. Click Save

🎥 Training Resource: [Outreach/Point list on Vimeo](#)

User Password Reset

1. On the left-hand side, expand My Agency Setup
2. Scroll down to Security and expand
3. Click on WAPLink People
4. Choose the employee
5. Click on User Password Reset
6. A popup will as if you want to force user to reset their password when they next login; click yes
7. When the user next logs in, they will enter their username then click enter

Deactivate User Login

1. On the left-hand side, expand My Agency Setup
2. Scroll down to Security and expand
3. Click on WAPLink People
4. Choose the employee
5. Click on Deactivate User Login
6. A popup will ask you to verify you want to deactivate the selected user, click yes.

WAPLink Person Signature

1. On the left-hand side, expand My Agency Setup

1. Scroll down to Security and expand
2. Click on WAPLink People
3. Choose the employee
4. Click on WAPLink Person Signature
5. Using your mouse, sign the lower half of the screen, click Submit.
6. Note: Only the employee has access to this signature.

Adding Users to WAPLink

1. On the left-hand side, expand My Agency Setup
2. Scroll down to Security and expand
3. Click on WAPLink People
4. A form will open. Click New on the top of the menu.
5. Fill out the appropriate fields.
6. Click Save.
7. Then click on Security Definitions. A new window will open.
8. Click New.
9. Then on the bottom of the window select the security group in which you would like to assign. At this time, select System Admin. We will continue to work on security groups for the live version.
10. Click Save.
11. You should now see the System Admin under the Security Group.
12. Repeat steps 8-11. Does this again and select WAPLink as the security group.
13. Lastly, click User Password Reset and this will prompt user to change password when they login. You should get a prompt to verify to force a user to reset the password. Select Yes. You should see a message on the lower right corner of your screen saying Password Reset Request completed.
14. Provide users with their usernames and ask them to login, using only username, hit enter and WAPLink will force the user to add password.

🎥 Training Resource: [LITT People Entry on Vimeo](#)

Security Groups

Definitions

System Admin: Coordinator/Director level; Highest level of security and should be assigned to 1 – 2 high level staff. This security level can modify all other security groups/staff.

Fiscal: Financial functions primarily executed by fiscal staff

Office Support: Duties primarily performed by office/support staff.

WAPLink: Duties primarily performed by technical/field staff.

Security Group Assignment and Modification

Add Security Group for Employee

1. Click on WAPLink People
2. Click on the employee's name
3. Click on Security Definitions
4. Click New
5. Choose the Security Group from the dropdown list
6. Click Save

Delete Security Group for Employee

1. Click on WAPLink People
2. Click on the employee's name
3. Click on Security Definitions
4. Click on the Security Group you wish to remove
5. Click Delete

Add Individual Rights

1. Click on WAPLink People
2. Click on the employee's name
3. Click on Security Definitions
4. Click Security Overrides
5. Choose the Security Definition from the dropdown list
6. Choose the Rights (N – No Access; R – Read Only; D – Read/Write, No Delete; W – Read/Write/Delete)
7. Click Save

Add additional Security Groups

1. Security groups are limited to those currently set up. If an additional group is needed, send a request to Commerce and include the name of the group and screen access categories, and rights. Commerce will decide whether an additional group is warranted.

🎥 Training Resource: https://vimeo.com/682980374/c943121487

Section 2: Client Eligibility Information

Customer Search

The Customer Search function within WAPLink is the definitive list of households that are income-eligible for Weatherization services. Beside some situations with multifamily buildings, the Customer Search function serves as the sole source of eligible clients for the program. WAPLink is regularly updated with household data from eHEAT on a nightly basis. All information from eHEAT is locked in WAPLink and cannot be edited. If any client information is inaccurate, you will need to contact your local EAP service provider to have it updated.

1. On the left-hand side, click on Customer Search.
2. Enter any relevant data and click Search.
    1. You may also just click Search, and the entire list of eligible clients will populate.
3. If successful search, a list of clients will populate.
4. If a client does not show up, then the client is either not in the system, eligible, or data was incorrectly entered.
5. To select a customer, click on the customer you want to review.
6. You will be able to see all the available information regarding the customer, review their WAP Application, or move them to the Waitlist.
    a. WAP Application will include:
        i. Date application was approved
        ii. Primary and secondary applicant
        iii. Contact info
        iv. Household member details
        v. WAP priority categories
        vi. Dwelling/ ownership info.
        vii. Utility information
        viii. Household fuel consumption data (if available)
        ix. Eligibility
        x. LIHEAP eligible means the HH meets the EAP income & housing type guidelines and EAPWX funds may be used.
        xi. USDOE means HH meets the USDOE income guidelines and USDOE funds may be used
7. Once on the Wait List, you can move them to Deferral, Denial, or Not Interested list, or schedule them.

Training Resource: [Customer Application Staff Portal on Vimeo](#)

Section 3: Dwelling Information

Home Information

This section provides information regarding the home and various Queue's where clients may be found.

1. From the left-hand navigation, click WAPLink
2. Click Home Information

Address History

To check if an address has been previously weatherized, you can verify via Address History.

8. To Home Information
9. Click on Address History
10. Enter the address
11. Click Search
12. If nothing comes up, the address is either not been previously weatherized or entered incorrectly.

Deferral Queue
Add Client to Deferral Queue

1. Click on the client's name from any the client or wait list
2. Click the Deferred button
3. Click Yes to "Are you sure you want to Defer this Application?"
4. Click New
5. Enter the deferral details (Deferral Issue Date, Stage, Condition, and Issue are required fields)
6. Click Save

View the Deferral Queue

1. Click on Deferral Queue in left hand navigation
2. Enter the client Name or County or just press enter to see the entire list
3. Click on the individual client to see the details or reactivate the client

Waitlist
The Waitlist is used to move clients from the main list to the next step in the audit process. From this screen you can move a client to Deferred, Denied, No Interest, or Scheduled.

1. Click on Waitlist
2. You can sort the list by entering the info in the Filters or by clicking the any of the headers to sort the list
3. Once you identify the HH you want to manage, click on it
4. From the open tab, which show the house information, category, and associated points, you can schedule the client, defer, deny, or make they not interested or add notes.
5. When complete, click Save

Section 4: WAPLink – Audit and Standalone Events

Travel guidance

Enter travel costs for crews under Measures in WAPLink and ensure you select "Travel" and "Include in SIR" so it will interact with the Job SIR. Note – you will see red outlined boxes (required) for Energy Savings information, but this can be ignored, and the audit will still process.

Inventory

To add to your agency inventory first select the statewide bubble at the top left of the window. This will display any inventory entered statewide that is available to add. Search for the product you are adding to inventory in the search field at the top left.

If your search result doesn't show the desired inventory item you can select new that now appears above the search field. This will open a blank record to then add a inventory item. The only required fields are item number and description.

The remaining fields to enter include a inventory category that can be added to from file maintenance. A UPC code lookup that can add some manufacturer details based on the database info for the UPC code. You can also link the inventory item to a WA 10 material for both NEAT and MHEA.

Once finished you can select save at the top left. This will then enable the location view, adjustments, and PO view at the bottom of the inventory window. Location view shows a inventory count for all inventory locations for your agency added through file maintenance.

The adjustments button will allow editing of all inventory items to be the most up to date count. This can also be the first step in adding existing inventory. To add an item, select new at the top left and then choose a location in the dropdown.

The remaining items to edit are the new on hand field which will replace whatever the current on hand count is and the reason field to describe the need for the modification. When finished select save and the inventory will be updated. PO view will display any open purchase orders for that specific inventory item.

Inventory Search

The Inventory functionality can be used to keep track of in-house inventory. It can also be used as simply a database for items that are commonly used. Items from the Inventory list are used to populate work orders, WL measures, and kits.

Inventory items can either be entered from an existing State list or can be entered manually.

To add items from the State list to your agency inventory:

- Select the Statewide radio button
- Select an item from the list
- Click Add to Agency Listing button.
- Enter desired product details, quantity, and costing information.

To create your own inventory items:

- Select the Statewide radio button
- Begin to type into the search bar. The New button will appear above the search bar.
- Enter desired product details, quantity, and costing information.

Notes:
To remove an inventory item, click the Remove to Agency Listing button.

Inventory Price Update

This page is used to update prices of multiple inventory items efficiently. Click on an item and then into the New Cost column. Update costs and click Save. The updated costs will be used for any work orders created after the updated prices are saved. The cost will also be updated in any WL measures that include the item.

WL Setting Group

WL Setting Group creates the NEAT and MHEA grouping for the agency that each library belongs to. By making a setting group, you then can choose this group on following screens and links to each of the related settings.

This must be updated annually by the Service Provider and is recommended to use the Program Year (PY) within the designation. This allows you to create a new Setting Group with updated WA Insulation, WA Active Measures, and WA Measure Costs each year.

To Copy or Archive your current WL Setting Group, select the appropriate Setting Group Name and click on the Copy/Archive button on the top.

From here, you can simply archive the current Setting Group, and it will hide it from being used on all new projects.

If you are preparing for your new Program Year, you can create a copy by entering a New Setting Group Name and either select Yes or No to Archiving After Processing for your old Setting Group. Select your agency name, if not already selected and then select Process.

By selecting No, this allows you to have your current Setting Group enabled while you edit your new Setting Group. Once you are ready to archive your old Setting Group, you can simply follow the steps again and select Archive Only. To prevent users from using a Setting Group too soon, it may be helpful to name the file something that informs the user that the file is not ready (i.e. Draft or Do Not Use) and once the Setting Group is complete, you can simply select the name and change the name on the main WA Setting Group page.

Reminder, ensure you select NEAT if it is a NEAT Setting Group.

WA Fuel Cost (Statewide – non-editable)

The WA Fuel Costs are the statewide fuel prices that will be used in any NEAT or MHEA audit. These costs will be updated annually and are designated by the appropriate Program Year. The costs are made up of Fuel Type, Unit of Fuel and Unit of Cost, and the Heat Content of the fuel.

Within the WA Fuel Cost, the Price Indices are embedded for each fuel type. Fuel price indices are used to adjust the dollar savings of measures to account for anticipated changes in fuel prices over their life. This is made up of both the Price Index as well as the Uniform of Present Worth (UPW) Factor. The Price Index is the projected Price Indices based on national averages across the US and the UPW is computed from the price indices and the Real Discount Rate entered in Key Parameters.

WA Insulation

WA Insulation is the form that allows you to name and characterize custom user defined insulation types which allows you to define additional insulation types for each of these components to meet local needs:

- Attic Spaces
- Knee Walls
- Walls
- Floors
- Sill Spaces
- Foundation Walls

When you enter a description string and R (or R/in) value in this form, NEAT and MHEA will include cost detail records for those types in the Library Measures tab for the associated measures.

The Added Insulation Type fields on the Walls, Unfinished Attics, Finished Attics and Foundations forms in the NEAT and MHEA building description allow specification of the type of insulation to be considered when insulating these components.

Below these insulation type names are blank, editable fields into which you may enter the names of additional insulation types of your choosing. To the right of these material names are numeric fields giving the R-values per inch or total R-Value of the material you are defining. The R-values have dimensions h-ft2 -F/Btu. Entries in these fields permit your defined insulation types to have the physical characteristics needed by the NEAT audit that you desire. Required for named insulation types.

Thus, for the program to seriously consider use of an insulation type you add, a reasonable cost must be entered on Library Measures Costs form corresponding to the envelope component using the insulation.

WA Key Parameters (Statewide – non-editable)

The WA Key Parameters are statewide fields that provide the flexibility of modifying some of NEAT's and MHEA's inputs and assumptions. These are updated annually by Commerce and designated by the appropriate Program Year.

NEAT Key Parameters

Real Discount Rate – The rate at which dollars saved in the future are discounted to a worth in current dollars and is supplied by DOE.

Minimum Acceptable SIR – The savings to investment ratio (SIR) for an individual measure below which the measure will not be recommended. A minimum SIR of 1.0 has been specified by DOE but allowance of 0.75 for EAPWX funds.

Heating and Cooling Setpoints for Daytime and Nighttime (F) – The assumed thermostat set-points in the house being audited. NEAT has been designed to make recommendations based on typical occupancy. The set-point values should not be altered to reflect any unusual lifestyles of the occupants.

New Shower GPM (gal/min) – The flow rate in gallons per minute of replacement shower heads used in your program.

Single Defrost kWh – The electrical energy in kWh assumed consumed by the existing refrigerator's defrost cycle. The value is used to adjust the metered consumption of the refrigerator if the user indicates that the metering period included a defrost cycle.

R-Value Uninsulated "Other" Wall (h-ft2 -F/Btu) – The R-value associated with an uninsulated wall given Wall Type "Other" on NEAT's Walls form.

Annual Outside Film Coeff (Btu/h-ft2 -F) – The winter/summer average film coefficient assumed for exterior surfaces.

Base Free Heat from Internals (Btu/h) – The heat from lights and appliances that is released into a home. NEAT adds to this base amount the heat generated by as many as two adults (276 Btu/h per adult) and one child (224 Btu/h) for every occupant above two in number.

R-Value Exterior Siding "Other" (h-ft2 -F/Btu) – The R-value associated with the Exterior Type (siding) "Other" on NEAT's Walls form.

New DWH Blanket R-Value (h-ft2 -F/Btu) – The insulation R-value used to wrap water heaters in the Water Heater Tank Insulation measure.

MHEA Key Parameters

Real Discount Rate – The rate at which dollars saved in the future are discounted to a worth in current dollars and is supplied by DOE.

Minimum Acceptable SIR – The savings to investment ratio (SIR) for an individual measure below which the measure will not be recommended. A minimum SIR of 1.0 has been specified by DOE but allowance of 0.75 for EAPWX funds.

Heating and Cooling Setpoints for Daytime and Nighttime (F) – The assumed thermostat set-points in the house being audited. NEAT has been designed to make recommendations based on typical occupancy. The set-point values should not be altered to reflect any unusual lifestyles of the occupants.

Spending Limit ($) – The average per dwelling expenditure of financial assistance allowed under the Weatherization Assistance Program as prescribed in the annual program guidance. If this limit is exceeded for an specific dwelling, a warning will be printed under the "Special Notes" section of the Recommended Measures Report (see Section 12.2, Recommended Measures Report).

Interior Floor R-Value: Summer, Winter (h-ft2 -F/Btu) – The R-value of the interior floor components, excluding insulation, for the summer and winter seasons. The floor components may simply include the flooring material, floor covering, and the surface resistance of the air. Refer to literature related to approximating R-values of building components for further detail.

Evaporative Cooler Actual Saturating Eff (%) – The saturating efficiency of the evaporative cooler. Refer to manufacturer's literature or literature describing evaporative cooler operation for actual saturating efficiency values.

Density of Loose Cellulose and Fiberglass Insulation (lb/ft3) – The anticipated density of cellulose and fiberglass insulation to be installed. These values are used with the Bag Size entries that follow to determine the number of bags of insulation necessary to perform the associated insulation retrofits.

Saturating Eff for Evaporative Tune Up (%) – The saturating efficiency after a tune-up has been performed on an evaporative cooler.

Saturating Eff for Evaporative Rplcmnt (%) – The saturating efficiency of a replacement evaporative cooler. The manufacturer's literature should help indicate the new evaporative cooler saturating efficiency.

Bag Size for Loose Cellulose and Fiberglass Insulation (lb.) – The weight of the bags of cellulose and fiberglass insulation purchased to perform the insulation retrofits. These values are used with the Installed Density entries above to determine the number of bags of insulation necessary to perform the associated insulation retrofits.

Batt Blanket, Loose, Rigid, Foamcore Insulation R-value Per Inch (h-ft2 -F/Btu-in) – The R-value per inch for the insulation to be used in MHEA energy calculations. This value is used to evaluate the insulating effect of existing insulation described on the input forms as well as the insulating effect of new insulation added during weatherization. Note that rigid insulation is typically found in the roof section and that foamcore insulation is typically found in the wall sections of the manufactured home.

Cooling System Fan Power (Watts) – The fan power of the cooling system fan. This value is used in the equipment cooling capacity and equipment energy consumption calculations.

Door U-value: Wood with Solid Core, Wood with Hollow Core, Standard Manufactured Home Door (Btu/h-ft2 -F) – The U-value for each type of door. These values are used to evaluate the insulating effect of the existing doors described on the input screens. Note that MHEA assumes a standard manufactured home door has a solid core and a vinyl or fiberglass skin. • U-value of replacement door (Btu/h-ft2 -F) – The U-value for a replacement manufactured home door. This value is used to evaluate the insulating effect of the replacement doors.

Interior Wall R-Value: Summer, Winter (h-ft2 -F/Btu) – The R-value of the interior wall components, excluding insulation, for the summer and winter seasons. The wall components may simply include the interior wall material and the surface resistance of the air. Refer to literature related to approximating R-values of building components for further detail.

Home Leakiness—Tight, Medium, and Loose (cfm) – The pre-retrofit blower door readings in CFM at 50 Pa pressure differential which are associated with the selection of Home Leakiness on the Audit Information form of the MHEA audit (see "Home Leakiness" in Section 8.2, Audit Information). The values are used if none are entered for "Before Weatherization (Existing) Air Leakage Rate and House Pressure" on the Air and Duct Leakages form of the audit (see Section 11.2, Ducts and Infiltration – Air and Duct Leakages).

Low Flow Shower Head Flow Rate (gal/min) – The flow rate in gallons per minute of replacement shower heads used in your program.

Interior Ceiling R-Value: Summer, Winter (h-ft2 -F/Btu) – The R-value of the interior ceiling components, excluding insulation, for the summer and winter seasons. The ceiling components may simply include the ceiling material and the surface resistance of the air. Refer to literature related to approximating R-values of building components for further detail.

Water Heater Wrap Added R-Value (h-ft2 -F/Btu) – The R-value of insulation used to wrap water heaters in the Water Heater Tank Insulation measure.

Outside Wall R-Value: Summer, Winter (h-ft2 -F/Btu) – The R-value of the outside wall components for the summer and winter seasons. The wall components may simply include the exterior wall material and the surface resistance of the air. Refer to literature related to approximating R-values of building components for further detail.

Free Heat from Interior Sources: Day, Night (Btu/h) – The heat released into a home from activities taking place within the home, including cooking, hot water use, appliance use, and lighting. MHEA assumes daytime hours of 8:00 AM through 8:00 PM with the remaining hours considered to be during the nighttime.

Refrigerator Defrost Cycle Energy (kWh) – The electrical energy in kWh assumed consumed by the existing refrigerator's defrost cycle. The value is used to adjust the metered consumption of the refrigerator if the user indicates that the metering period included a defrost cycle.

WA Active Measures (Non-editable)

WA Active Measures is used to enter information about the measures you want NEAT and MHEA to consider while evaluating an audit. The "Library" measures are those which have been programmed into NEAT and MHEA, as opposed to any user-defined measures you may have generated as a WL Measure. You need to select the appropriate Setting Group for either NEAT and MHEA to access the list of Measures which displays the Engine Number, Measure Name, and whether the measure is Active or not.

Measure Name – This is the name the library measure will be identified by in all locations throughout the program, including audits, work orders, and all reports that might be printed. Note that the measure names of similar measures may differ in NEAT versus MHEA.

Active – Selection of this checkbox indicates your desire that the program consider this measure when forming its recommendations. Even if selected here, however, a measure will not be recommended unless it is cost-effective or is a measure that has been declared mandatory and is so designated within a specific audit.

WA Measures Cost

Each measure listed on the WA Active Measures form has the measure life and an associated cost. NEAT and MHEA use these costs for evaluating the cost effectiveness of measures. On this form, the cost components for a measure are restricted to three entries: Material, Labor, and Other.

Most of the insulation measures, cooling system, and lighting retrofit measures have multiple materials that may be used in installing the measure. In such instances, each material will have its own set of Material, Labor, and Other cost components.

Separate entries may be made for the dollar cost per unit to purchase the material and the dollar cost per unit for labor to install the material. Both NEAT and MHEA simply add these two quantities together (they always have the same "Units" associated with them) in determining the cost of installing the measure. The third component to the cost for each material, "Other," will likely have different units than the material and labor components. Entry in this column may be handled differently in NEAT versus MHEA and may not be appropriate for many measures in NEAT.

For example, an "Other" cost for an attic insulation measure in NEAT has units of "Each Attic," implying that this dollar cost will be added to the cost of insulating each individual attic segment, not to the total cost for insulating all the attics in an entire dwelling. Only in the case of a home having a single attic segment qualifying for insulation would the entry have the likely intended purpose of a setup cost for equipment necessary to install the insulation.

MHEA does not have the option to describe multiple attic segments for the mobile home, so doesn't suffer from this problem. The "Other" cost column in NEAT is more appropriately used for measures such as window treatments where you have an option to cost the measure per window ("Each") or per square foot of window area.

Paying close attention to the "Units" of the "Other" cost component will assist you in deciding when it is appropriate to use this entry for any specific measure. The entries in the Unit$ column are required, though they are permitted to be zero, if no material has zero cost per unit for all three components. The total cost for a measure will be the sum of the costs from the three components, using the quantities in the units indicated from the specific audit being evaluated.

WA Measure Setting

In addition to the WA Active Measures, the WA Measure Settings will expand on these items and include the measure life. NEAT and MHEA allow you to change the "Life" of each measure. The lifetimes in the programs as shipped reflect industry standards and will likely be sufficient for your use. However, if you have documented cause to alter them, you may do so on this form. For some measures, the life may depend on the specific material being used in your program. Note that lifetimes for "Lighting retrofits" are in thousands of hours burn time for the replacement compact fluorescent, not years.

WL Measures

WL Measures, previously known as User Defined Measures, can be used to predefine weatherization activities that are not addressed within the library measures but commonly encountered during an audit. Defining these measures on this form allows you to copy them to any audit as an itemized cost or to a work order.

Also accessible from this form is a library of predefined health and safety measures. These are measures associated with specific health and safety hazards which may be observed during an audit. Activities that you define (those other than the library health and safety measures) may or may not have energy savings associated with them. Those without energy savings are referred to as "itemized costs." They

may be repair costs, administrative costs, etc. Those for which you have assigned energy savings will be considered exactly as any of the library measures defined in the program. They will be ranked by SIR and recommended only if their SIR meets the established criteria. Additional input is required for this type of user-defined measure, as described below.

The User Defined Measures form is divided into three sections: the general task description on the top of the form, a Materials/Labor Details sub-form in the middle, and the Measures record navigation block, the Measure Comment field, the "View" drop-down list and the "All User Measures Costs" button at the very bottom of the form. The Materials/Labor Details sub-form is multi-component, allowing any number of material or labor components to be associated with each user-defined measure.

Users can either add WL measures from an existing State list or they can create their own.

To add a measure from the State list:

1. Open WL Measures
2. Check the Add State Measure Mode box
3. Use the search bar or scroll to identify the desired measure.
4. Select the measure and confirm you would like to add it.
5. To remove a State Measure, open the measure and click the Remove State Measure from Agency button
6. To see your agency's list of WL measures, uncheck the Add State Measure Mode box on the WAPLink Measure Viewer screen

To add your own WL measure:

1. Open WL Measures
2. Enter the measure name. This is the only required field.
3. For both State measures and manually entered measures, you can select criteria that apply to the measure by using the drop downs and check boxes on the WAPLink Measure Entry screen. Choose if the measure can be used in NEAT, MHEA, and/or EA-Quip (multiple can be selected). Choose if the measure can be used for an Audit, Standalone, or Pre-WX work order.
4. A WL Measure can be linked to a library measure from the audit run. When the audit returns the linked library measure, the Default Kit from the linked WL Measure will auto populate into the work order.
5. Click the WA 10 Links button on the WAPLink Measure Entry Page
6. Select the Library Measure(s) to link
7. Click Save
8. WL Measures can either include just a Material amount and a Labor amount (more common for contractor-based agencies), or it can include detailed lists of individual materials (more common for crew-based agencies).
9. Material/Labor costing only:
10. From the WAPLink Measure Entry screen, click the Materials/Labor button.
11. Enter your Material, Labor, and Other (optional) amounts. Including GL codes is optional.
12. Click Save

Building Kits:

A kit is a breakout of materials and labor pricing within a measure to speed up data entry for work orders. It's not required, and you can simply enter that info each time you create a work order instead.

1. From the WAPLink Measure Entry screen, click the Materials/Labor button.
2. Enter your Material, Labor, and Other amounts. Including GL codes is optional.
3. Click Save
4. Click the Kit Details button
5. Click New
6. Enter a Kit Label and click Save.
7. Click the Edit button.
8. Add line items into your kit. To add materials from your inventory:
9. Click New
10. Click the Material radio button
11. Click the search button to view and selected materials from your inventory.
12. Enter Quantity. If you have a cost and/or unit of measure associated with a material in your inventory, it will auto populate.
13. To keep line items in a certain order within the kit, use the Ordering box to number the line items.
14. Click Save.
15. Repeat process for each line item added to the kit.
16. If you would like a note to be associated when the kit is used in a work order, click Kit Notes and enter your note. Click Save.
17. Multiple Kits can be associated with the same WL Measure. To create additional kits, use either the New or Copy button at the top of the WL Measure Kit screen to build additional kits.
18. NOTE: to utilize the WA 10 Links functionality, you need select a default kit. If you used the Material/Labor costing only, you would need to make a kit and check the Default Kit box. The kit can simply have Material and Labor line items.

Scheduling Clients

At this point, the agency will schedule the client for the Energy Audit.

1. On the left side of the screen, go to WAPLink.
2. Click on Home Information.
3. Click on Waitlist.
4. This will bring up the WAPLink Point List screen. Enter any applicable information and click on the Search button on the right side of the screen.
5. This will bring up all the applications that have been verified and waiting to be scheduled for Weatherization. At this point, you need to click on the customer that needs to be scheduled.
6. This will bring up the WAPLink Points Call List for the client. At this point, there are three options. The agency can call the client to schedule the Audit and find out if the client wants to have Weatherization.
   a. If the Client is called and does not want weatherization, then the agency will choose the Not Interested button on the right side of the screen.

          i.   Answer the Please be Advised Question. (Note: if the client did say they were not interested in Weatherization. Choose Yes)

          ii.   This will remove the client and return the agency to the WAPLink Points List.

    b. If the Client informs you that they have a reason why Weatherization cannot proceed, example like an active renovation project or the home is for sale, then you can click Deferred or Denial and move the Client from the Waitlist.

    c. If the client is interested and there is no reason to deny or defer services, then the client can be scheduled. Click the Schedule button on the right side of the screen.

          i.   This will bring up the Schedule Entry screen.

          ii.   Click on the **New** button at the top of the screen.

1. Enter the Start Date/Time.
2. Select Energy Audit from the Appointment Type dropdown.
3. Choose the Agency Representative who is calling to schedule the Audit.
4. Click on Confirm in the Agency Confirmation box.
5. Click on Confirm in the Customer Confirmation box. Click Save.
6. If the client suggests a new date /time, the agency can enter the latest date/time in the box.
7. Click Save.
8. If the agency has already called the client and set up a Start Date/ Time.
9. Repeat 1 – 4 above.
10. Click on Confirm in the Customer Confirmation box.
11. Click on Save at the top of the screen.
12. This will take you back to the WAPLink Points Call List for this customer.
13. Click on the X at the top of the screen.

7. Repeat Steps 1 – 6 Above for the remainder of the clients that need to be scheduled if the agency is ready to schedule them.

My Schedule

When clients are scheduled for an audit, it populates your personal WAPLink calendar.

View Your Calendar:

1. Click on My Schedule
2. Click on Click on a day to view the calendar events for that day

Add Event to Calendar

1. Click on My Schedule
2. Click on Add
3. Enter the Event Description, date/time of event and add Notes
4. Click Save

Training Resource: Schedule on Vimeo

Agency Schedule

This view allows you to see the events for the entire agency.

1. Click on Agency Schedule
2. Click on Click on a day to view the calendar events for that day

Add Event to Calendar

1. Click on My Schedule
2. Click on Add
3. Enter the Event Description, date/time of event and add Notes
4. Click Save

🎥Training resource: Schedule on Vimeo

Energy Audit Navigation

General Navigation

All screens operate in similar ways.

- New
- Save
- Cancel
- Delete
- Minimize
- Maximize
- Information
- Copy
- Images
- Measures

Documentation Standards

WAPLink data entry and site drawing documentation should reflect the following standards:

- **Data Accuracy:** Data gathered by Energy Auditors and Quality Control Inspectors must ensure accurate energy modelling in WAPLink and must provide cost and materials estimates that allow contractors and crews to perform their work efficiently and effectively.
- **Sufficient Documentation:**
  ο Documentation should provide colleagues and monitoring agencies familiar with the Weatherization Assistance Program with sufficient information to understand the relevant conditions in a home and the scope of work.
  ο Documentation should provide crews and contractors with sufficient information to clearly understand the scope of work and the materials required to perform that work.
  ο Documentation requirements will avoid duplication of effort whenever possible.
- **Program Compliance:** Data should be gathered and documented such that each Weatherization project can be performed according to Minnesota Weatherization Assistance Program (MN WAP) Policy.

Site Drawing Requirements

- Attic, Foundation and Wall dimensions
- Attic, Foundation and Wall Square footage calculations
- Door and Window dimensions
- Cardinal Direction/Orientation
- Information that will affect the scope of work
- Information needed by crews or contractors to perform their work properly

Beginning the Audit Input Process

1. On the left side of the screen, navigate to WAPLink and expand
2. Click on Home Information
3. Click on Home Queue
4. This will bring up the WAPLink Job Search screen. Click on the HH Number to begin the Energy Audit
5. Select the appropriate Audit Event Type: NEAT, MHEA, Priority List, etc.
6. Assign Auditor
7. Current Stage
8. Agency Code
   a. Agency code is for the agency to use a unique job number if they don't intend to use the generated job numbers. It allows it to be searched by that code in the home queue and show on reports by that agency code.
9. Base Funding
   a. This allows you to select which is the primary Federal funding source such as DOE or IIJA.

Measure Consideration

All measures (ECM, IRM, HSM, & GHW) that can be done within the program guidelines shall be done. A complete list of measures can be found in the Allowable Measures Chart (Audit Event) (AMC) - (Appendix B, Field Guidance). Listed below are measures with additional, specific policies related to them.

Note: It is beyond the scope of WAP to bring existing homes up to current code. Only where installation of weatherization measures triggers a code compliance issue, are we required to bring items in a home up to code standards. Specific exceptions are outlined in the Health and Safety portion of the US DOE State Plan.

Energy Conservation Measure (ECM):

As defined in WPN 19-5, an Energy Conservation Measure (ECM) is "a procedure, including materials and installation, which is considered or performed for its anticipated energy savings."

POLICY: ECMs are to be evaluated based on a Savings to Investment Ratio (SIR), which is equal to the energy savings over the life span of the measure divided by the total cost of the installation. The energy savings are calculated by the WAv10 engine, and the cost is entered into WAPLink. Estimated energy

conservation measure costs must be reasonable and accurate representations of the costs in a Service Provider's service territory. All ECMs with an SIR of 1.0 for US DOE or 0.75 for EAPWX (LIHEAP) or greater must be completed.

There are instances where a measure can be considered either an Energy Conservation Measure, a Health and Safety Measure, or an Incidental Repair Measure. Where a measure has the potential to be an ECM, always attempt to cost justify the measure using your energy audit procedures prior to considering it for a Health and Safety Measure (HSM) or an Incidental Repair Measure (IRM).

The regulatory purpose of this program is to save energy for our clients while maintaining their health and safety. When a potential measure meets an SIR of 1.0 or greater, it must be categorized as an ECM per 10 CFR 440.16(h).

In homes that utilize both US DOE and EAPWX funds, a minimum of one ECM per fund is required. If a home utilizes both EAPWX and EAPWX Carryover funds, each fund must have an ECM.

ECMs must be installed in the order of descending SIR with the following exceptions:
- Major health and safety issues must first be addressed.
- Any solar PV systems must be installed coincidently with or after other weatherization work, not in advance of weatherization work.
- Air sealing measures must be done before insulation.

PROCEDURE:
For Audit Events:
  1. Enter data from the energy audit into the WAPLink software.
  2. Generate recommended measures.
  3. For each identified ECM, use the current State Plans (Appendix A, State Plans) and the Allowable Measures Chart (Audit Event) (Appendix B, Field Guidance) to determine if it is an allowable activity.
  4. If there is a change in the cost of an ECM, the updated cost must be entered in WA to determine if the SIR is still 1.0 or greater for DOE funded measures, or 0.75 or greater for EAPWX funded measures, before proceeding.

Reminder: ECMs are not allowed in a Standalone Event.

Incidental Repair Measure (IRM):

As defined in WPN 19-5, an Incidental Repair Measure (IRM) is a repair necessary for the effective performance or preservation of newly installed weatherization materials, but not part of a standard installation. IRM installations must be associated with a specific ECM or group of ECMs. IRMs must be justified by written and photo documentation in the client file. IRM costs must be included the SIR calculation of the total package of weatherization measures.

POLICY: Justification for IRM's must be noted in WAPLink, including an explanation of their need and relationship to a specific conservation measure or a group of conservation measures. The cost of all IRMs is added to the cost of all ECMs combined to calculate a cumulative job SIR. The resulting cumulative SIR calculation for the total job cost must be 1.0 or greater for DOE funded jobs. If the job is funded by EAPWX only, the total job SIR must be 0.75 or greater. Estimated incidental repair measure

costs must be reasonable and accurate representations of the costs in a Service Provider's service territory.

Incidental Repairs are limited to those activities listed in the Allowable Measures Chart (Audit Event) and costs must result in a cumulative job SIR of 1.0 or greater.

PROCEDURE:
For Audit Events:
1. Identify and document any necessary IRM and the associated ECM(s).
2. For each IRM, use the State Plan (Appendix A, State Plans) and the Allowable Measures Chart (Audit Event) (Appendix B, Field Guidance) to determine if it is an allowable activity.
3. If the cumulative job SIR is less than 1.0, or 0.75 for jobs exclusively funded with EAPWX funds, use the current State Plan (Appendix A, State Plans) and the Allowable Measures Chart (Audit Event) (Appendix B, Field Guidance) to determine if the IRM can be installed as a Health and Safety Measure as identified in Section 4.2.3 of the Policy Manual.
4. In DOE funded jobs where the cumulative SIR remains less than 1.0 because of IRM costs, remove the IRM and the associated ECM(s) with the lowest SIR until the cumulative SIR is 1.0 or greater.
5. When filling out details in the audit or work order, ensure that the WAPLink (WL) measure type is set to "Incidental Repair Measure."

Reminder: IRMs are not allowed for Standalone Events.

Health and Safety Measure (HSM)

As defined in WPN 19-5, a Health & Safety Measure (HSM) is a procedure, including materials and installation, "necessary to maintain the physical well-being of the occupants and/or weatherization workers where the actions MUST be taken to effectively perform weatherization work, or the actions are necessary as a result of weatherization work."

POLICY: All Audit Events must include an assessment of the health and safety issues of the home. Clients must be provided with a written notice of identified health and safety risks, including those that go beyond the scope of WAP.

The Health & Safety portion of the current State Plan (Appendix A, State Plans) and the Allowable Measures Chart (Audit Event) (Appendix B, Field Guidance) give detailed guidance on what health and safety activities are allowed. Service Providers are responsible for managing costs to stay within the average cost per unit over a program year. For PY24 the US DOE average is $2,000 and the EAPWX average is $3,500. The Health and Safety Average for the US DOE WAP IIJA is $1,435 for the life of the grant.

The Allowable Measures Chart (Audit Event) (AMC) also provides details on when written justification for specific measures is required in the Health and Safety tab of the WA file.

Health and Safety appliance replacements may be justified by comparing the cost of replacement versus the cost of repair. Factors such as anticipated useful life and condition of the appliance should be considered. In such cases, a cost comparison between replacement and repair justifying the course of action must be placed in the client file.

Health and Safety Measure repair limits are per fund source. See the Allowable Measures Chart (Audit Event) for repair limits.

PROCEDURE:
For Audit Events:
1. Identify and document existing and potential health and safety hazards.
2. Provide written notification of the health and safety hazards to the property owner in rental dwellings and to the client in both rental and owner-occupied dwellings. Include all information relevant to the hazard.
3. For each identified hazard, use the current State Plan (Appendix A, State Plans) and the Allowable Measures Chart (Audit Event) (Appendix B, Field Guidance) to determine if correction of the hazard is an allowable activity within the resource limitations of the program.
4. Identify if the hazard should be mitigated before, during, or after weatherization activities.
5. Determine whether to proceed with weatherization or defer weatherization until the hazard is mitigated. When filling out details in the audit or work order, ensure that the measure type is set to "Health and Safety."

General Heat Waste (GHW)

As defined in WPN 23-6 Attachment 1, GHW weatherization materials have been determined by US DOE to be generally cost effective, and do not require justification by a site-specific energy audit. GHW reduction materials are intended to be relatively low-cost items that are quickly and easily installed.

POLICY: Minnesota GHW measures include furnace and air conditioner filters and limited air sealing (weatherstripping, door sweeps, and caulking). Total GHW measure costs will not exceed $250 per dwelling. Additional caulking and weatherstripping are allowable as air infiltration reduction measures.

PROCEDURE:
For Audit Events:
1. Weatherstripping and door sweeps shall only be installed as a GHW measure on entry way doors and attic hatches between conditioned and unconditioned spaces and when existing weatherstripping is missing, of poor quality, or poorly installed.
2. Weatherstripping and door sweeps installed as a GHW measure shall follow the SWS and be made of quality, durable materials designed to withstand the elements. Mechanically fastened weatherstripping and door sweeps and/ or durable rubber sweeps designed to fit certain metal and fiberglass prime doors shall be preferred. Non-mechanically fastened weatherstripping will only be used when mechanically fastened weatherstripping is not physically feasible.
3. Installed furnace and air conditioning filters will be the highest MERV rating allowable by local code and that is deemed not to overly restrictive to the existing duct system.
4. To add a GHW measure, select the measures button in the client window, select New, and then either WAPLink (WL)Measure or Manual Measure. Check the box "GHW" measure. Click Save.

Reminder: GHW measures are not allowed for Standalone Events.

NEAT Process

1. Click on WA 10 Settings.
2. complete the following items:

a. Fuel Cost Library: Choose the current PY Fuel Cost Library.
b. Key Parameters: Choose the current PY Statewide NEAT Key Parameters.
c. Weather File: Choose the closest Weather file to the location of the client's home. The WEATHER LOCATION city you choose will not always be the geographically closest city to your client. It might even be in another state. You are looking for the weather file that most closely approximates your client's location's Heating Degree Days (HDD) and Cooling Degree Days (CDD).
d. Active Measure File: Choose the current agency NEAT file.
e. Conditioned Stories: Enter the number of floors that are heated and cooled, including basements if significant portion is above grade. Enter a value between 1 and 4 and can be entered in decimal form (e.g. 1.5).
f. Average # of occupants: Enter the number of occupants in the home.
g. Floor Area: Enter the square footage of the floor area that is conditioned.
h. Inf Height: Enter the infiltration height which is measured from the lowest point above grade (excludes window wells) to the highest point of the conditioned space (ceiling or peak), per ASHRAE 62.2.
i. # Bedrooms: Enter the number of bedrooms.
j. Year Built: Enter the year the home was originally built. If the number is pre-1978, lead details button will show, and you can enter information regarding lead documentation and/or testing.
k. Must click SAVE before you are allowed to continue.
3. Click the + Housing Items Button
4. Complete all applicable components related to the home.

   a. **Walls**
   Wall Entry Instruction Video

   Walls of the same wall type, stud size, exterior type, exposure, orientation, and R value, and added insulation type can be grouped into single walls. Site drawings, wall codes, or wall comment field should explain which wall sections from the dwelling make up each "wall." SPs typically have a variety of added insulation types in their WA Insulation library to account for differences in the price of insulating walls with different types of cladding or methods. Information provided to crews and contractors insulating walls should include all information necessary for them to perform the measure efficiently and effectively.

      i. Click New.
      ii. Wall Code: Input a unique Wall Code for each wall.
      iii. Wall Type: Choose the construction type of the wall system.
      iv. Stud Size: Choose Stud Size from the dropdown.
      v. Exterior Type: Choose the Exterior Type from the dropdown.
      vi. Exposed To: Choose the Exposed To from the dropdown. Note – a buffered wall is defined a wall that is exposed to an unconditioned, but enclosed space, such as a garage or porch.
      vii. Orientation: Choose the Orientation of the wall from the dropdown.
      viii. Height: Enter the wall height here.

ix. Length: Enter the wall length here.
x. Gross Area (sq ft): Calculate the wall area H x L and enter it here.
xi. Existing Insulation: Define the Existing Insulation.
i. R-Value: Existing R-Value: Input the type and R-value of Existing Insulation. One wall of each home must be inspected for insulation levels. If there is an addition, the addition walls must be inspected. Sometimes it is hard to accurately assess the R-value of installed fiberglass batt insulation, except by the estimated year of installation. Use the following for 2x4 walls based on year:
1. Pre-1975 – R9
2. 1975-1995 – R11
3. 1995 to present – R13
xii. Added Insulation: Select the type of added insulation from the dropdown.
xiii. Added Cost ($): If there is additional costs to insulate this particular wall beyond the price defined in the library, enter those costs here. Examples could include the additional cost of blowing from the inside or repairing the necessary siding before adding insulation.
xiv. Enter the comment section for any comment clarification that is needed.
xv. Click Save.
xvi. If adding additional walls, you can either click New or you can click Copy and edit any information that is different.
xvii. Once complete, click on the next section such as Door or Window or the X at the top right corner of the Wall screen to close this window.

b. Windows
Window Entry Tutorial Video

Repair or replacement must be chosen for consideration and/or evaluation. Whether to model a prime window for repair or replacement is up to the auditor's discretion based on the documented existing conditions. Single pane windows without storm windows must be evaluated for storm window installation. A storm window with no prime should be modelled as a single pane window. It should be evaluated for replacement as a windows measure. If there is no SIR for replacement, it should be evaluated for sash replacement as an Infiltration Reduction measure. Window repair or replacement measures must be done according to the Allowable Measures Chart. Not every window crack results in air leakage. Window glazing should only be repaired or replaced when glazing is either missing, or a crack, hole, or the window itself allows air leakage.

To model basement windows, follow the following process, unless the space is unconditioned:

1. Walls Form: Describe concrete block wall(s) in the orientation of basement windows. Enter. Gross Area (sq ft) = Total area of basement windows in that orientation + 1.01. This is to ensure that net wall area exceeds 1 sq ft.
2. Windows Form: Describe basement windows and link them to the new walls.

i. Click New
ii. Window Code: Input a unique Window Code for each window.
iii. Window Type: Choose the appropriate selection from the dropdown list.

iv. Frame Type: Choose the appropriate type from the dropdown.
v. Glaze Type: Choose the appropriate type from the dropdown.
vi. Storm Window Type: Choose the appropriate from the dropdown.
vii. Leakiness: Choose the most appropriate leakiness level for this window. Provide an estimate of how leaky the window is. The choices are Very Tight, Tight, Medium, Loose, and Very Loose. Typical selections by window type are listed below. Degrade the leakiness one level if 2 to 9 sq. in. of glass is missing in the window and two levels if 9 to 25 sq. in. of glass 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 one level if a storm window in average or better condition is installed. Any deviation from the leakiness definitions found in the WA Manual should be justified in the window comment section.

- Jalousie window – The leakiness of a jalousie window is typically Loose.
- Awning window – The leakiness of an awning window that has a single sash of glass and a latching/locking mechanism that seals the window by forcing the sash against the frame and any installed weather stripping is typically Tight. Such a window is often called a casement window if it is hinged on the side or a hopper window if it is hinged on the bottom. The leakiness of an awning window with 2 or 3 sashes of glass or without a latching/locking mechanism is typically Medium.
- Slider window and sliding glass door – The leakiness of a vertical slider window is typically Medium if it is older and Tight if it is newer. The leakiness of a horizontal slider window or sliding glass door is typically Medium.
- Fixed window, door window, and skylight – The leakiness of a fixed window, door window, or skylight is typically Very Tight.

viii. Interior Shading: Choose the appropriate type from the dropdown.
ix. Exterior Shading: Choose the appropriate from the dropdown. If Overhang or Awning is selected, the Horizontal Projection (in) from the exterior wall and Distance from Lintel (in) above the window is required.
x. Wall Code: Choose from the dropdown the Wall Code for the wall on which this window exists.
xi. Width: Enter the Width (in) of the window
xii. Height: Enter the Height (in) of the window
xiii. Click the appropriate Retrofit Options / Additional Cost information. Options are:

- Evaluate All
- Weatherize Window
- Replace Window
    - o Glazing Type: Choose the glazing type from the dropdown.
    - o Enter Chart for U-values and SHGC Default values.

Glazing Type	U-Value	SHGC
Double Pane	0.32	0.40
Double Pane Low-E	0.32	0.40

- Add Storm
- Add Awning

- Add Exterior Shading
xiv. Enter the comment section for any comment clarification that is needed.
xv. Click Save.
xvi. If adding additional windows, you can either click New or you can click Copy and edit any information that is different.
xvii. Once complete, click on the next section such as Door or Wall or the X at the top right corner of the Window screen to close this window.

c. **Doors**

In WAv10, you cannot input a door and connect it to a buffered wall. For this, when inputting doors into WAPLink, DO NOT input a door attached to a buffered wall. Repairs to doors on a buffered wall can be done under infiltration reduction, GHW, or as an HSM if it is an attached garage.

If door glass has a surface area of more than 25%, you must model the glass separately in the window section and remove the surface area from the door area.

i. Click New
ii. Door Code: Input a unique Door Code for each door.
iii. Door Type: Choose the appropriate type from the dropdown.
iv. Area (sq ft): (is auto-calculated once entered; double check to ensure it is correct).
v. Storm Door Condition: Choose the appropriate one from the dropdown list. Remember: The storm door is considered only due to its ability to block air movement. NEAT treats deteriorated the same as none. The distinction allows you to convey additional information.
vi. Leakiness: Choose the appropriate Leakiness from the dropdown list. Provide an estimate of how leaky the door is. The choices are Tight, Medium, and Loose.
- 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. Primary door glazing over 25% should be modelled as a separate window.
- Medium doors 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.
vii. Height: Enter Height (in)
viii. Width: Enter Width (in)
ix. Wall Code: Choose the Wall Code for the wall on which this door exists.
x. Number on the wall:
xi. Replacement: Select replacement options, if applicable.
xii. Enter the comment section for any comment clarification that is needed.

xiii. Click Save.
xiv. If adding additional Doors, you can either click New or you can click Copy and edit any information that is different.
xv. Once complete, click on the next section such as Window, Unfinished Attic, or Finished Attic or the X at the top right corner of the Door screen to close this window.

d. Unfinished Attics

Averaging R-values. Attic insulation R-value levels can be averaged within a single attic using the following approved methods. Copies of the calculations of the average R-value must be included in the household file.
- Weighted Average R-value Calculator (Appendix C)
- RED equivalent R-value Calculator
- Parallel Path R-Value | Building America Solution Center

Batt Insulation De-rating. Batt insulation can be de-rated according to the Effective R-values for Batt Insulation chart found on page 8 of the Building Performance Institute Technical Standards for the Building Analyst Professional. BPI Building Analyst Professional Cover Page.pdf

Combining Multiple Attics. Attics having the same R-value and attic type can be combined in the WAPLink into a single attic. The combined attic areas and their square footages must be noted in the audit documentation and WAPLink. If combining attics of the same attic type with dissimilar R-values, the above approved methods of averaging R-values must be employed.

Floored Cavities with Open Blown. When modelling attics that have dense packed floor cavities with open blow insulation above them, calculate the total R-value of the two assemblies and model as an unfloored attic. Proper dense pack of the floored cavity will take priority over additional open blow.

There are two pathways to achieve an R60:

Maximum Depth Method: select "Blown Cellulose" (3.75R/in) and input the maximum depth of 16in as 3.75 * 16 = 60. However, if there is existing insulation of lower R/in, then the R60 would not quite be attained with increasing to the allowed total of 16in.

Library Method: Use "NEAT Insulation Types" to add a higher R/in insulation in the "Attic Insulation" section. Then apply the "Maximum Depth Method" shown above, except with the newly defined attic insulation and appropriate depth up to 16in to achieve the desired insulation value.

Note: there is no option 2 for use in MHEA, and the opportunity to achieve R60 in a manufactured home attic is unlikely. MHEA calculates the value and cost to fill the space available.

i. Click New

ii. Unfinished Attic Code: Input a unique Attic Code for each Unfinished Attic
iii. Attic Type: Choose the appropriate Attic Type from the dropdown list.
iv. Joist Spacing (in): Enter the Joist Spacing (in). NEAT does not use this number.
v. Attic Area (sq ft): Enter the attic area. In many homes, this will be the same as the conditioned area of a single-story home. If there are multiple attics, the sum of all attics must equal the area of the floor above which the attic sits.
vi. Roof Color:
vii. Existing Insulation: Choose the Existing Insulation type from the dropdown.
viii. Existing Insulation Depth: Enter the depth (in) of existing insulation. Note that depth is in inches, not in R-value. If the insulation is degraded, has many gaps, or is uneven, calculate the actual R-value and convert that back into inches. If this is done, explain it in the comments. If there is more than one type of existing insulation, choose the type that seems to be in the majority. Combine them when calculating depth, ensure the R-value is best represented, and mention them in the comment section.
ix. Added insulation Measure: Choose Measure # 1. If there is more than one attic, each must have its own measure number.
x. Added Insulation Type: Choose the appropriate Added Insulation Type from the dropdown list.
xi. Add R-Value: it is optimal to leave inputs for Added R-Value Blank. Added R-Value is a mandatory input that forces NEAT to provide the requested R-Value of insulation regardless of SIR. It will appear in the Recommended Measures as User-Spec Ceiling, even if the SIR is below 1.0.
xii. Max Depth (in): It is Optional to leave Max Depth blank. Max. Depth MUST BE entered for attics that are floored or cathedral or any other circumstance when the width of the joist limits the depth. Input the total floor joist or roof rafter width. Do not use this input for any open attic space. If there are any additional costs, you may add them to the additional cost field. If Other is chosen, provide a comment in the field provided.
xiii. Additional Cost ($): There will usually be Additional Costs with attics. All additional costs must be explained in the comments. Additional Costs may include items such as:
- Dams for hatch, flue pipes, and/or separating attic areas.
- Baffles
- Extra time to maneuver through a tight attic area.
- Labor cost to remove client's stored goods.
- Cost to insulate and air seal an existing attic hatch.
- Blocking of joist cavities under floored attics
- The following are NOT Additional Costs:
  i. Roof repairs (this should be an Incidental Repair)
xiv. Enter the comment section for any comment clarification that is needed.
xv. Click Save.
xvi. If adding additional attics, you can either click New or you can click Copy and edit any information that is different.
xvii. Once complete, click on the next section such as Door or Foundation or the X at the top right corner of the Unfinished Attic screen to close this window.

e. Finished Attics

The Gable End Walls of a typical Finished Attic must be modeled as Exterior Walls under the Wall Section.

If the space has a limited space such as a floored attic or cathedral ceiling, the auditor MUST input Max Depth. If there are any additional costs, you may add them to the additional cost field. If Other is chosen, provide a comment in the field provided.

    i.   Click New
    ii.   Finished Attic Code: Input a unique Attic Code for each Finished Attic
    iii.   Attic Area Type: Choose the appropriate one from the dropdown. Most finished attics have all four elements described here, and each type must be modeled individually (using the new button at the top left to create a new record for each). However, to save time, it is acceptable to combine the square footage area of both areas of the same type (say, Knee Walls and Roof Rafters) into a single record, notating it in the comment section.
    iv.   All inputs here are the same as on the Unfinished Attics page. There are three things to note:
- When modeling the Roof Rafters, you must input Max Depth. Use the height of the rafters
- NEAT understands that the outer ceiling joist is an unconditioned space. DO NOT MODEL THIS AREA AS A SEPARATE ATTIC UNDER THE UNFINISHED ATTIC.
- If a measure is not provided (SIR<1.0).

    v.   Measure: Choose a separate measure number for each element of a finished attic
    vi.   Enter the comment section for any comment clarification that is needed.
    vii.   Click Save.
    viii.   If adding additional attics, you can either click New or you can click Copy and edit any information that is different.
    ix.   Once complete, click on the next section such as Door or Foundation or the X at the top right corner of the Finished Attic screen to close this window.

f. Foundation

To help auditors determine the best pressure-thermal boundary for a home, and to ensure a consistent measure selection particularly in relation to weatherization of unfinished basements, no foundation should be modeled as unintentionally conditioned, but rather as conditioned or unconditioned depending on where the thermal/pressure boundary will be deemed to be.

Rim joists that are not accessible should not be included in the perimeter to insulate calculation. All foundations that can feasibly be insulated per code requirements should

be modelled for added insulation. Fiberglass rim joist insulation that has potential mildew, signs of moisture, and/or staining, should be removed and rims modelled as perimeter to insulate.

i. Click New
ii. Foundation Code: Input a unique Foundation Code for each foundation.
iii. Measure Number: This field groups items so that all items in the group are encompassed in a single SIR calculation and recommendation. Rim joists that are not accessible should not be included in the insulation calculation.
iv. Foundation Type: Choose the appropriate Foundation Type from the dropdown list:
   - Conditioned: A conditioned space is heated and/or cooled directly or indirectly through a permanently open doorway.
   - Non-Conditioned: Unvented and non-conditioned. Usually, it's a non-conditioned basement. It could also be a closed crawlspace.
   - Vented Non-Conditioned: This is a typical vented crawlspace. If there are foundation vents, they are vented.
   - Uninsulated or insulated slab: Always choose Uninsulated unless you know otherwise.
   - Exposed Floor: This is an overhang (such as a cantilevered floor) or the foundation of a house that sits on stilts or piers.
v. Area (sq Ft): Enter floor area (sq ft)
vi. Existing Insulation R-value: Enter the R-value of the insulation currently installed in the floor area.
vii. Added Insulation Type: Select the appropriate Insulation type to be installed if NEAT recommends insulation. All foundations that can feasibly be insulated per code requirements should be evaluated for additional insulation.
viii. Additional Cost ($): Enter any additional cost of insulating this item. Enter the total, not the cost per square foot. This cost is not generally associated with insulation and thus needs to be accounted for in the Measure Cost Library. A Negative Addition cost will subtract from the computed cost. If a cost is entered, briefly explain the reason for the additional cost in the comment section.
ix. Height (ft): Enter the wall height enclosing the foundation space (i.e., the basement or crawlspace wall) in feet units. Enter the average height if the height of the wall is not uniform.
x. Height Exposed (%): Enter the percentage of the height that is exposed to the outside air (i.e., is above grade) or the average percentage if the exposure is not uniform.
xi. Perimeter (ft): Enter the total external perimeter of the foundation wall in feet.
xii. Existing Insulation R-Value: Enter the R-value of the insulation currently installed in the foundation wall.
xiii. Added Insulation Type: Select the insulation type NEAT recommends. Select "NONE" if the condition prohibits insulating this section and note those conditions in the comment section.
xiv. Floor Joist Size (in): Enter the floor joist size (i.e., the band or rim joist) in inches. The level of insulation that will be evaluated for addition to a floor is restricted to those that allow the total existing and added insulation to fit within the joist depth.

xv. Perimeter (ft): Enter the total external perimeter of the foundation wall in units of feet.

xvi. Existing Insulation R-Value: Enter the R-value of the insulation currently installed in the sillbox area.

xvii. Enter the comment section for any comment clarification that is needed.

xviii. Click Save.

xix. If adding additional foundations, you can either click New or you can click Copy and edit any information that is different.

xx. Once complete, click on the next section such as Finished Attic, Unfinished Attic, or HVAC or the X at the top right corner of the Foundation screen to close this window.

g. **HVAC**

Replacement furnace test results should be placed in the inspection column of the primary furnace. Manufacturer and Model number are required.
Required Heating System Details Sub-Form (pg. 9-39)

Input Units and Input Rating. Required. Refer to 4.4.2.1 Mechanical System Replacements Policy for requirement.

Output Capacity: Refer to Replacement Policy for requirement.

Steady State Efficiency: Refer to Replacement Policy for requirement.

Automatic Vent Damper – Evaluate: Do not evaluate, just document their existence.

Follow the Heating Plant Replacement and Clean and Tune Policy. For homes that fit the criteria of the Heating Plant Replacement Policy, Replacement must be evaluated before Clean and Tune.

Flame retention head retrofits for oil burners are not an allowed measure in the MN WAP.

Cooling data must be entered for both central and room cooling systems per Weatherization Assistant Manual instructions. Note that in WAPLink, efficiency method can be chosen as either Name Plate Efficiency or Year Manufactured. If Year Manufactured is used, the system automatically applies a derating based on age for AC and heat pumps. Also, if Name Plate Efficiency is used, guidance to help auditors determine SEER or EER is recommended.

Cooling system replacement can be evaluated as an EAPWX Measure Expansion measure.

i. Click New

ii. HVAC System Code: Input a unique HVAC System Code for each HVAC entry.

iii. Equipment Type: Choose the appropriate type from the dropdown list.

iv. Location: Choose the appropriate location of the above equipment from the dropdown list.

v. Primary Fuel Type: Choose the appropriate fuel type from the dropdown list.
vi. Backup Fuel Type: Choose the appropriate backup fuel from the dropdown list if applicable.
vii. Input Units: Choose the appropriate units from the dropdown list.
viii. Year Manufactured: Input the year the unit was manufactured. It can be found on the model plate. It is coded into the model or serial number. An excellent website to find the year of manufacture of any HVAC unit is http://www.building-center.org.
ix. Heating EFF: Enter the Value as a whole number, then choose the Appropriate Unit from the Dropdown list. This goes for the Cooling Side as well.
x. Output Capacity: Enter the value as a whole number, then choose the appropriate unit from the dropdown list.   Cooling data must be entered for both central and room cooling systems. Cooling system replacement can be evaluated as an EAPWX expansion measure.
xi. Fraction of load Served %: This is the percentage of the home's conditioned floor area that is heated or cooled by this unit. If there is more than one unit, estimate the percentage from each. The total must add up to 1.00.
xii. Equipment Features: Check off if the equipment has the features listed
   • Atmospheric Burner
   • Automatic Vent Damper. Do not evaluate, just document their existence
   • Pilot Light
   • IID (Intermittent Pilot Ignition Device)
   • Pilot light remains on throughout the summer.
xiii. Year Installed: If known, input the year installed
xiv. Maintenance Status: Choose the appropriate maintenance status of the system from the dropdown list.
   • Annual Professional Maintenance: A professional comes out yearly to clean and maintain the unit to meet manufacturer specifications. Filters are replaced regularly.
   • Seldom or Never Maintained: Filters are replaced regularly, and a professional is only called out when there is an issue with the system.
   • Not Working: The system does not work at all.
xv. Install Smart Thermostat: Check the Required box and the Include in SIR Box. Put in the Heating Nighttime Setback Temp and the Dailey Setback Hours. Include Additional Cost, if needed.
xvi. Tune Up: Check the Required box and the Include in SIR box. Put in the Efficiency Temp Heat % and the Efficiency Temp Cool %. Note - 1-2% improvement is typical and that 2-5% is possible if the unit is old and not maintained Add in any additional cost if needed.
xvii. Replace the Equipment:
Click on Replace the Equipment
   • If a replacement system will be installed using funds from another funding source, model the new system as the existing unit and note this in the Comments Section. The auditor will need to determine the efficiency and size of the new unit.
   • If a replacement system will be installed using H&S funds, follow the health and safety heating system replacement procedure:

Select the replacement mandatory option for health and safety heating system replacements. This will result in WAPLink creating a measure with an SIR less than 1.0 in the Recommended Measures list. Do *not* upload this measure into the work order. The result will be that the energy savings of the new heating system will still have interacted with the predicted energy savings and SIRs of the energy conservation measures and incidental repair measures and the measure will not show up on the Measures with SIRs less than 1.0 report.

Create a WL Measure cost for the health and safety heating system replacement. Upload this itemized cost into the work order.

xviii. Equipment Type: Choose the appropriate Equipment Type from the dropdown list of the replacement.
xix. Primary Fuel Type: Choose the appropriate fuel type from the dropdown list.
xx. Backup Fuel Type: Choose Back up Fuel Type, if applicable.
xxi. Heating EFF: Enter the value as a whole number. choose the appropriate unit from the dropdown list. This goes for the Cooling Side as well.
xxii. Output Capacity: Enter the value as a whole number. choose the appropriate unit from the Dropdown list for heating and cooling systems.
xxiii. Replacement Life: Must Enter 20 as default for gas heating replacement, or 15 years for ASHP and cooling replacements, or 18 years for Other heating types.
xxiv. Fraction of load Served %: This is the percentage of the home's conditioned floor area that is heated or cooled by this unit. If there is more than one unit, enter the percentage from each unit.
xxv. Replaces: Input Which units is being replaced.
xxvi. Enter the comment section for any comment clarification that is needed.
xxvii. Click Save.
xxviii. If adding additional HVAC systems, you can either click New or you can click Copy and edit any information that is different.
xxix. Once complete, click on the next section such as Foundation or Duct or the X at the top right corner of the HVAC screen to close this window.

h. **Ducts**

Why do we model ducts in conditioned spaces? It is because of the delivery efficiency calculated by the engine. It is the ratio between the energy consumption by the equipment if the duct system had no losses (or gains) to the outdoors due to conduction from duct's surface and duct leakage, and the energy consumed by the same equipment connected to the duct system.
- For a ductless system, heating (or cooling) energy use = heating (or cooling) loads / equipment efficiency
- For a ducted system, heating (or cooling) energy use = heating (or cooling) loads / (equipment efficiency * duct efficiency)

Why do we count return registers? When the return duct surface area is not provided by the user, NEAT/MHEA calculate the default return duct surface area as a function of the number of return registers (as specified in ASHRAE Standard 152). When using default

for duct surface, why can't we edit R-value? What if the insulation found is below or above R7? R7 is the default for any "insulated" duct system. R0 is the default for any uninsulated duct system. If the existing conditions (duct area, R-value) are different than the default, then it is quick to uncheck and enter modified values. Note: "use defaults" generates what WAv8 used to calculate in the background based upon the same inputs.

    i. Click New
    ii. Duct Code: Input a unique Duct Code for each type of duct
    iii. Duct Type: Choose the appropriate Duct type of duct.
- Supply Duct: Duct that transports conditioned air into the home
- Return Duct: carries air from the room back to the air handler

    iv. HVAC System Served Heating: Choose the appropriate HVAC system from the dropdown. This will depend on what was entered in the HVAC section under the Heating input.
    v. HVAC System Served Cooling: Choose the appropriate HVAC system from the dropdown. This will depend on what was entered in the HVAC section under the Cooling input.
    vi. Duct Location: Choose the appropriate Location of where the Ducts are located from the dropdown list.
    vii. Surface Area: Agencies will need to know the Duct Dimensions. The User Default button will be checked off, and the calculation is now embedded into the WAPLink software.
    viii. If the agency chooses to measure the duct:
- Can combine the sections of the duct work that have the same shape (i.e., Round, Rectangular)
- Will need to know the Length (ft), Width (in), Height (in) and Diameter (in)
- Need to input the above information in the Comment Section.
- Round: Area = Pi * (D/12) *L
- Rectangular = Area = (W*2 + H*2) / 12*L
- Flat Oval = Area = (Pi*H + 2 * W) / 12 * L

    ix. Insulation R-value: Enter the existing R-value of the insulation on the Ducts.
    x. After entering the above information, check the User Default Box
    xi. Number of Return Registers: Enter the number of Return Registers to the HVAC system.
    xii. Measure Number: Each duct type must have a different Measure Number and Duct Shape.
    xiii. ADDED R-value: input the R-value that needs to be added to ductwork.
    xiv. Additional Cost ($): This is to be input if there is an unusual and unique extra cost to insulate or repair. You must explain the additional cost in the comment section.
    xv. Enter the comment section for any comment clarification that is needed.
    xvi. Click Save.
    xvii. If adding additional Duct, you can either click New or you can click Copy and edit any information that is different.
    xviii. Once complete, click on the next section such as HVAC or Infiltration or the X at the top right corner of the Duct screen to close this window.

i. **Air/Duct Leakage**

Choosing a target After Weatherization CFM:
- Providers should strive to achieve 100% of their target goal. Service Providers should continue to focus on the following items, understanding that it is a sliding scale approach based on housing characteristics versus a general reduction goal.
    - The target should be based on reducing air infiltration as much as is feasibly possible within the confines of the SIR and the existing conditions.
    - The target CFM must be attainable and realistic. It should be aggressive enough that crews are challenged to seek out and complete every feasible air sealing opportunity in a home.
    - The target CFM should account for insulation measures such as dense packing walls and insulating rim joists that may result in significant infiltration reduction.
    - The target CFM should be based on historical results for air sealing in a Service Provider's service territory for a given housing type, condition, and size.
    - Goals (not limited though) based on historical data analysis, projects with CFM @50 Pa readings:
        - <1000 CFM – 10-20%
        - 1000-2000 CFM – 25-30%
        - 2000-3000 CFM – 30-40%
        - 3000-4000 CFM – 40-45%
        - >4000 CFM – 45-50%

Choosing Infiltration Reduction cost estimates:
- Infiltration reduction cost estimates should provide weatherization crews with the means to achieve the target CFM.

Quality Control Inspectors will review air sealing targets, infiltration reduction goals, final blower door numbers, and work completed to assess that all feasible air sealing work was completed to ensure there were no missed air sealing opportunities.

Blower Door Pressures should be measured at Pa/CFM@50

Infiltration

i. Enter the Air Leakage Rate (cfm) and House Pressure Difference (Pa) for the Before Weatherization (Existing) column.
ii. Enter the Air Leakage Rate (cfm) and House Pressure Difference (Pa) for the After Weatherization (Existing) column.
iii. Enter the Infiltration Reduction ($) cost.
iv. Select the Blower Doors button on the side and select New.
v. Enter the Date, Conducted During, and Blower Door Measurements, and select Save.
vi. Close this window and navigate to the Zonal Pressure button on the side and select New.

vii. Enter the appropriate details of the Zonal Pressures and select save for each test.
viii. Close this window and navigate to the Zonal Pressure button on the side and select New.
ix. Close this window and navigate to the Pressure Pans button, if applicable, on the side and select New.
x. Enter the appropriate details of the Pressure Pans and select save for each test.
xi. Close this window and navigate to the Room Pressure Balances button, if applicable, on the side and select New.
xii. Enter the appropriate details of the Room Pressure and select save for each location.
xiii. Enter the comment section for any comment clarification that is needed.
xiv. Click Save.
xv. Complete information for Duct Sealing if applicable or move to the next section such as Duct or Water Heating or the X at the top right corner of the Air/Duct Leakage screen to close this window.

j. **Duct Leakage**

Ducts Inside the Building Envelope

Ducts inside the building envelope do not need to be modeled for duct sealing in WAPLink National Energy Audit Tool (WAPLINK-NEAT) as an energy conservation measure. Depending on the visual inspection of all accessible ducts during the energy audit process, gaps or holes greater than ¼" must be sealed as an HSM.

When a natural draft appliance exists, a Combustion Appliance Zone (CAZ) test will be completed as part of the energy audit process and again during the quality control inspection. If, during the worst-case CAZ Test, the air handler causes a pressure difference in the CAZ that is negative two (-2) Pascal's or more (negative) the pressure must be relieved through either return duct sealing or pressure relief venting between the CAZ and the rest of the dwelling.

All duct sealing must be done in accordance with SWS. The method of duct sealing will depend on the location of the leak in the duct system.

In modeling duct sealing inside the building envelope in WAPLINK:

- Include duct sealing as part of a furnace replacement measure, or
- Limited duct sealing may be modeled as a health and safety measure such as correcting issues with depressurization and natural drafting appliances.

Ducts Outside the Building Envelope

Ducts outside the building envelope must be modeled for duct sealing in National Energy Audit Tool (WAPLINK-NEAT) as an energy conservation measure. All ducts that have a savings to investment ratio (SIR) of 1.0 or greater (or .75 or greater for with EAPWX) will be sealed in accordance with SWS. The method of duct sealing will depend

on the location of the leak in the duct system. Ducts must be sealed prior to insulating to comply with SWS.

In modeling duct sealing and duct insulation for site-built homes in WAPLINK-NEAT (additional guidance can be found in section 11.2 of the WAv8.9_User_Manual.pdf):

- Duct sealing and duct insulation can be included as part of a furnace replacement measure as a conservation measure.
- Limited duct sealing may be modeled as a health and safety measure such as correcting issues with depressurization and natural drafting appliances.

Additional Considerations:

- New component to new component ducts should be sealed according to 2020 IRC M1601.4.1 (Minnesota Mechanical and Fuel Gas code 603.9).
- Duct tape unlisted for a given application shall not be permitted as a sealant on any duct

Filter Rack and Filter Rack Cover:

Filter racks and covers should be modified or replaced as needed to ensure that they are airtight; keep the filter firmly in place; do not allow air to flow around the filter; and allow for easy filter replacement.

i. Leakage Method: Check the Evaluate Duct Sealing to get additional funds for duct sealing. Extra on-site measurements will be required.
ii. Duct Leakage Method: Choose the appropriate leakage method from the dropdown list:
- Whole House Blower Door Measurements
- Blower Door Subtraction Measurements
- Duct Blower Measurements
iii. Duct Sealing ($): Enter the cost amount associated with duct sealing.
iv. Duct Operating Pressures: (NOTE: Remember that you must perform the Duct Operating Pressure Test.

For Duct Operating Pressures, enter the Before Duct Sealing supply and return duct operating pressures with respect to the space surrounding the ducts, in units of Pascal, measured during normal conditions with the air handler fan on. These measurements can be taken by inserting pressure probes through small holes drilled in the supply plenum (near the air handler) and the return plenum. The holes should be repaired afterwards. For After Duct Sealing, add 5 Pa more than the Before Duct Sealing value.

Before Duct Sealing. Both Supply and Return static pressures need to be measured in the field. Typically, one is measured and then the other. Testing does not have to be simultaneous. Static duct pressures are measured with the furnace air blower on. The blower door must NOT be running.
- Supply static pressure: Inserting the manometer hose in the supply plenum is best. If this is not possible or practical, insert the hose in the

nearest supply register and place the hose as close as you can to the plenum. You can close the register through which you are testing or tape it shut to get a better reading.

- Return static pressure: Inserting the manometer hose in the return plenum is best. If this is not possible or practical, insert the hose in the nearest return register and place the hose as close as you can to the plenum.

v. Before Duct Sealing (Existing): Input the data as measured in the field.

vi. After Duct Sealing (Target or Actual):

- For duct sealing, typically a reduction of 300 CFM or less would be expected, except where catastrophic leaks are present.

vii. If you don't believe the above target is achievable, write in your adjusted target. You MUST explain your reasoning for this in the comments section

viii. Duct Sealing Cost. Input amount needed for duct sealing.

ix. NEAT will not accept $0 for duct sealing. If you cannot achieve a duct sealing measure with an SIR, then uncheck Evaluate Duct Sealing. See below for more information.

x. Explain in comments that you attempted duct sealing but could not get the measure with an SIR.

xi. Your comment will remain even after you uncheck Evaluate Duct Sealing, as will the data you entered.

xii. Click Save.

xiii. Once complete, click on the next section such as Duct or Water Heating or the X at the top right corner of the Air/Duct Leakage screen to close this window.

k. **Water Heater**

If auditor is unable to locate existing data information, see table below to assist:

Type of Water Heater	Age Estimate	Energy Factor (EF)	Recovery Efficiency (%)
Gas Storage (Conventional)	Pre-1990s	0.50 – 0.55	75% – 80%
	1990s–2005	0.55 – 0.60	78% – 82%
	2005–2015	0.60 – 0.67	78% – 83%
Electric Storage	Pre-2000s	0.85 – 0.88	98% – 99%
	2000s–2015	0.88 – 0.95	98% – 100%
Gas Power-Vent	2000s–2015	0.65 – 0.70	82% – 85%
Gas Tankless (non-condensing)	2000s–2015	0.78 – 0.82	83% – 87%
Gas Tankless (condensing)	2010s	0.90 – 0.94	92% – 96%

i. Manufacturer and Model numbers are required unless tag is missing or unreadable.

ii. Equipment Type: Choose the type from the dropdown.

iii. Fuel: choose the fuel type from the dropdown

iv. Location: Choose the Location where the domestic water heater is located from the dropdown.

v. Rated Input: enter rated inputs.
vi. Size (Gal): enter the size of the storage tank.
vii. Input units: Choose Input Units from the dropdown.
viii. Energy Factor: You must enter the Energy Factor of the water heater. See chart above for guidance.
ix. Recovery Efficiency (%): Must enter the % of Efficiency. See chart above for guidance.
x. Check if the Water Heater Wrap is Present. NEAT will not provide a water heater wrap if this is checked. Do not model a water heater wrap as a present if there is no room for it. You must model the water heater without a wrap and note in the comment section that there is no room for the wrap to provide photo documentation.
xi. Check if the Water Heater Pipe Insulation is Present. NEAT will not provide water heater pipe insulation if this is checked. Only select this if there is at least 5 feet of insulation on the pipes exiting the water heater.
xii. Original Tank Insulation. Enter EITHER
   - R-Value:
   - Thickness (in): Type of internal tank insulation. This is rarely marked on the tag. You can measure existing insulation by removing an access cover and measuring thickness & type.
xiii. Shower Heads: Enter the number of showerheads in the home.
xiv. Shower Use: per day (min/day)
xv. Avg. GPM: (gallons per minute).
   - GPM must be measured or taken from the manufacturer's data on the showerhead.
   - If using manufacture data, you can typically assume 10-15 minutes per resident.
   - If measuring, use a container of known volume and a stopwatch to determine gallons per minute
xvi. Enter the comment section for any comment clarification that is needed.

l. Replacement:

All water heaters must be evaluated for replacement to see if an SIR for replacement can be achieved.
i. Manufacturer: Choose the Manufacturer from the dropdown.
ii. Model: Choose the Model from dropdown.
iii. Equipment Type: Choose the equipment type from the dropdown.
iv. Fuel: Choose Fuel Type from dropdown
v. Input Units: Choose Input Units from dropdown
vi. Rated Input: enter rated inputs.
vii. Size (Gal): enter the size of the storage tank.
viii. Input units: Choose Input Units from the dropdown.
ix. Energy Factor: Per manufacturer
x. Recovery Efficiency (%): Must enter the % of Efficiency.
xi. Lifetime (yr): Must Enter in 13 As Default.
xii. Installation Cost ($): You must enter the installation cost.
xiii. Click Save.

xiv. Once complete, click on the next section such as Infiltration or Refrigerator or the X at the top right corner of the Water Heating screen to close this window.

m. Refrigerator

  i. Click New
 ii. Manufacturer: Choose Manufacturer from the dropdown. All refrigerator data should be entered.
iii. Style: Choose the style of the refrigerator from the dropdown.
 iv. Defrost: Choose Defrost Type from dropdown.
  v. Model: Choose Model from the dropdown.
 vi. Location: Choose the location of the refrigerator.
vii. Size (cu ft): enter the size of the refrigerator.
viii. kWh/yr: Go online to find an estimate of fridge usage.
 ix. Age: Find the manufacturer's tag in the serial number.
  x. Door Seal Condition: If you choose POOR, take photos. (If you Metered the fridge, enter the following data Label Consumption and door seal condition will be ignored)
 xi. Metering Minutes: Enter the number of minutes you metered the fridge (must be 120 minutes or more significant)
xii. Meter Reading (kWh): (This is rarely higher than 0.4 kWh)
        1. If you noticed a spike during metering, that may indicate the fridge entered a Defrost Cycle during metering.
        2. Includes defrost cycle box should be used when metering.
xiii. Enter the comment section for any comment clarification that is needed.

n. Replacement

  i. Manufacturer: Choose Manufacturer from the dropdown (if manufacture is not in the drop-down, leave blank)
 ii. Style: Choose the style of the refrigerator from the dropdown.
iii. Defrost: Choose Defrost Type from Dropdown.
 iv. Model: Choose Model from Dropdown. If the model is not listed, leave it blank.
  v. Size (cu ft): enter the size of the refrigerator. Replacement refrigerators should be like for like.
 vi. kWh/yr: Go online to find an estimate of fridge usage. This entry is not required if you are using metered consumption data.
vii. Height (in): Enter in the Height if known. You can leave it blank.
viii. Width (in): Enter the Width if known. You can leave it blank.
 ix. Depth (in): Enter in the Depth if Known. You can leave it blank.
  x. Lifetime (yr): use the default 15.
 xi. Installation Cost: Must enter the cost of installation.
xii. Additional Cost: Additional costs could include labor, delivery, and/or recycling. If there is, make sure to clarify it in the comment section.
xiii. Optional section: Available space dimensions
xiv. Height (in): Enter in the Height if known. Optional section. You can leave it blank.
 xv. Width (in): Enter the Width if known. Optional section. You can leave it blank.

xvi. Depth (in): Enter in the Depth if Known. Optional section. You can leave it blank.

xvii. Click Save.

xviii. Once complete, click on the next section such as Water Heating or Lighting or the X at the top right corner of the Refrigerator screen to close this window.

o. Lighting

i. Click New

ii. Lighting Code: Input a unique Lighting Code.

iii. Existing Lighting System: Choose the from the dropdown. All bulbs attached to the dwelling, both interior and exterior (including attached garages) shall be modeled.

iv. Usage (Hrs./day): The number of hours the lights are used during the day. Only lightbulbs that are used for ≥1 hour a day should be modeled for replacement. All lightbulbs should be modeled if they are being replaced through CIP or EAPWX Measure Expansion.

v. Number of Existing Bulbs: Enter the number of bulbs. (Use the following input and can group them if all the bulbs are the same wattage. For the home.)

vi. Wattage of Existing Lamps (watts/lamp): Enter the wattage of existing bulbs

vii. Replacement Type: choose the replacement type from the dropdown.

viii. Usage (Hrs./day): The number of hours the lights are used during the day. (Use from the above usage)

ix. Quantity: Use the number of existing bulbs from above.

x. Size (watts): Use this table to help you choose the appropriate LED equivalent wattage:

Incandescent	CFL	LED
100W	26W	18W
75W	18W	9W or 13W
60W	13W	7W
40W	7W	5W

xi. Usage (Hrs./day): Use the usage from above.

xii. Lifetime (hrs.): Enter the default of 10,000.

xiii. Labor Cost: Must enter in Labor Cost

xiv. Material cost: You must enter the material cost.

xv. Other Cost:

xvi. Enter the comment section for any comment clarification that is needed.

xvii. Click Save.

xviii. If adding additional Lighting, you can either click New or you can click Copy and edit any information that is different.

xix. Once complete, click on the next section such as Refrigerator or Health and Safety or the X at the top right corner of the Lighting screen to close this window.

5. Health and Safety

1. Click New
2. Fill in every box with information about the home.
3. Click Save.
4. Click on Measure on the top right side of the window.
5. Click New.
6. At this point, you have two options: you can choose to do WAPLink Measure or Manual Measures
    a. WAPLink Measure
        i. Hit the down arrow, scroll through the listing, and find what you want to add.
        ii. **DO NOT** Click on Include in SIR
        iii. Click save.
        iv. Repeat the above three steps until all Health and safety items are added to the system.
    b. Manual Measure
        i. Enter in the Measure Description and Cost.
        ii. Click Save.
        iii. Click on Include in SIR
        iv. Repeat the above three steps until all Health and safety items are added to the system.
    c. Enter the comment section for any comment clarification that is needed.
    d. Click Save.
    e. Once complete, click the X at the top right corner of the Health and Safety screen to close this window.

6. ASHRAE 62.2

1. Click on ASHRAE 62.2 tab.
2. Complete all necessary fields.
3. Refer to the FAQ for additional guidance.
4. Enter the comment section for any comment clarification that is needed.
5. Click Save.
6. Once complete, click the X at the top right corner of the ASHRAE screen to close this window.

7. Measure

1. Click New.
2. Select WAPLink Measure or Manual Measure.
3. Select the appropriate Measure Type.
    a. HSM
    b. Deferral Mitigation
    c. EXP Measure
    d. IRM
    e. GHW
    f. Travel
    g. Include in SIR. If selecting Include in SIR, you must enter:
        i. Energy Savings

          ii.   Energy Unit

          iii.   Life

          iv.   Fuel

h. Complete Measure Description**.**

i. Enter Material and Labor costs. This will autofill the Cost field.

j. Select Kit, if applicable.

k. Enter the comment section for any comment clarification that is needed.

l. Click Save.

m. Once complete, click the X at the top right corner of the Measure screen to close this window.

8. Run WA 10 Engine

a. Before running the audit in the WA 10 Engine, click the Missing Items Button. This screen will let you know what items are missing.

b. Click on Run WA 10 Engine.

c. Click on Process Audit.

d. The date submitted should have the date and time. Process Status should Say Finished, and Measures Returned should have a number if successful.

9. Work Order Creation

a. Now that the Energy Audit has been completed, it is time to create the work orders for the audit.

b. Once the audit is run, click on the finished audit at the top of the Audit Process screen.

c. Create Workorder in the bottom right of the screen.

d. From this screen, there are three options. It can be sent to the crew, a vendor, or out for a bid.

     a. Crew

          i.   Select the box on the right side of the screen.

          ii.   Click the Crew button.

          iii. Then choose the crew from the drop-down that shows up next to the crew button.

e. Click Save.

f. Repeat steps b and d. For Vendors and Bids.

g. Click on the Assigned /Unsent and then Click on the box on the right side.

h. Click the Create Work Orders/Bids button at the top.

i. Click the X at the top right of the screen.

j. Once the Work order is created, you will Return to the Main Screen and click on Work orders.

k. On the Work Order Detail Screen, click on the work order you want to work on. Then, double-click the measure name you wish to work within the box on the right.

l. Click New

m. From this screen, you will enter the Task, Material cost, Labor cost, and any other work order costs.

     a. Click on the Task and Select Search. This will bring up the SWS List and help you choose the correct SWS associated with this task.

          i.   Choose Qty needed.

          ii.   Choose unit type. Make sure that the correct unit type is chosen.

          iii. Enter the cost for the task being performed.

        iv.   On the top right, click the Measure notes and enter Notes into the measure. NOTE: You must enter the Measure note into the Work Order. You need to be specific in detail about what needs to be done.

   b.   Click on the Material and Select Search. This will bring up the Agency's inventory if the agency has inventory stored in WAPLink.

        i.   Choose Qty needed. Choose unit type. Make sure that the correct unit type is chosen.

        ii.   Enter the cost for the task being performed.

   c.   Click on the Labor. Enter the description of the labor that is being performed.

        i.   Choose Qty needed. Choose unit type. Make sure that the correct unit type is chosen.

        ii.   Enter the cost for the task being performed.

n.   Repeat steps above until all work orders are done.

o.   Click the X in the top right corner.

p.   Once the work has started, change the status to Active.

q.   Click Save after you change the status.

r.   Click the X in the top right corner of the screen.

s.   Once the vendor or the crew completes the Work Order, return to the Home Screen and repeat Step 16 but change the Status to Inspection.

MHEA Process (differences from NEAT only)

Mobile Home Site Assessment

Mobile Home Site Assessment

```
                        Conduct site assessment
                        /                      \
        Moisture Assessment              Installation Assessment
        - Standing Water                 - Settling of the home
        - Positive Grade                 - Leveling of the home
        - Condition of Gutters           - Organic materials
        - Vegetation/Shrubbery
                        \                      /
                Can weatherization proceed without deferral?
               /                  |                        \
        No: Defer        Yes, with Remediation*          Yes: Proceed
                                  |
                          Can WAP remediate?
                         /                  \
                   No: Defer            Yes: Proceed
```
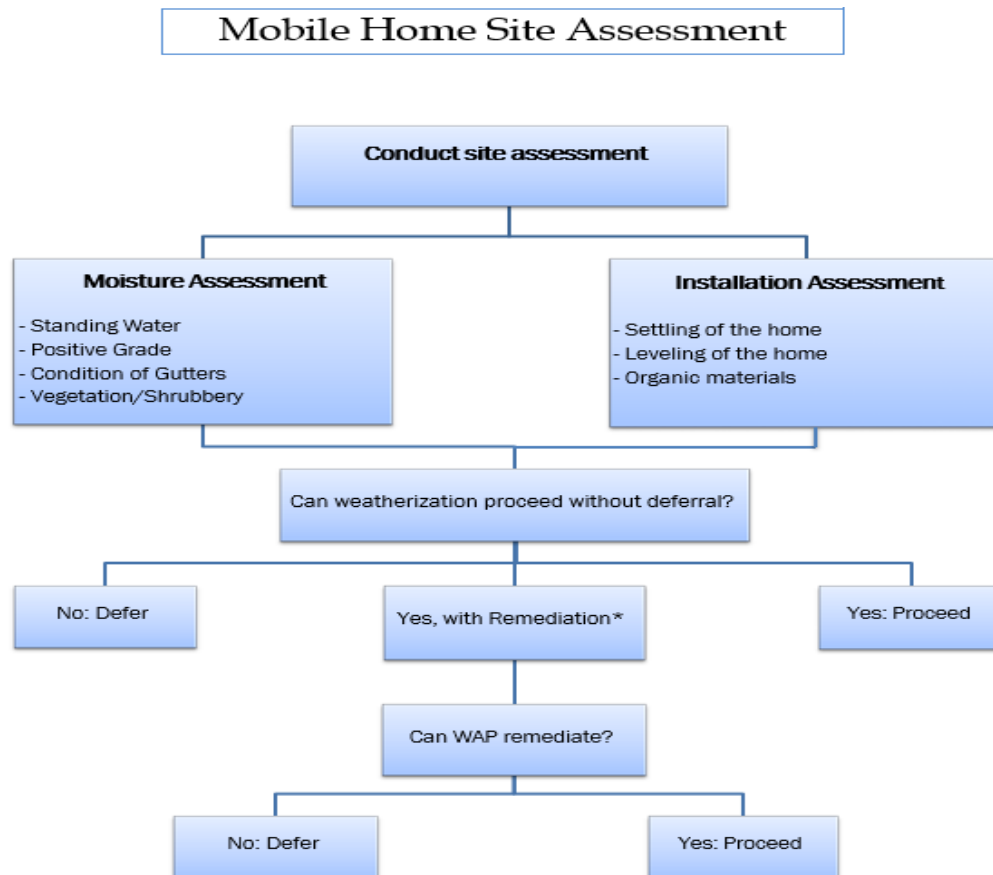
*All remediation activities must follow the AMC

Manufactured Housing Code and Alteration Requirements:

- Identify the manufacture date
- Minnesota Code: label or seal
- Housing and Urban Development (HUD) code: Data plate or compliance certificate provided by the seller when the manufactured home was purchased.
- Record in the comments box of the MHEA audit in WAPLink
- Alteration
- For all manufactured homes: As a part of all manufactured home energy audits, identify any pre-existing alterations to the manufactured structure and document it in the WAPLink software.
- For manufactured homes covered by HUD or Minnesota Code: Complete weatherization activities as indicated by the MHEA audit to the extent they return the home to the manufacturer's specifications.

- For pre-code homes: Complete weatherization activities as indicated by the MHEA audit, taking care that activities do not damage any of the manufactured home's systems as indicated by the policy above.

POLICY: When a manufactured home's design and existing conditions allow, insulation beyond its designed R-values may be added to its belly, attic cavities, or both.

- A completed Minnesota Weatherization Assistance Program (MNWAP) Manufactured Housing Added R- value Certificate must be attached in a durable manner near the manufactured home's Data Plate. manufactured-housing-disclosure.pdf
- A copy of the MNWAP Manufactured Housing Added R-value Certificate must be included in the client file.
- Belly repairs must use approved materials that meet SWS standards, 24 CFR 3280.305, 24 CFR 3280.307, and ASTM D-781-1968 (73) for corrosion resistance; air and moisture barrier; expansion and contraction; rodent resistance; and sealant air and moisture resistance, such as "Flex-Mend" and "Belly-Flex" or equivalent.
- Insulation added to attics must not compromise the attic venting design and must conform to 32 CFR 3280.504. If attic ventilation is added it must conform to 32 CFR 3280.504 and the vent type and additional free air square inches must be recorded on the MNWAP Manufactured Housing Added R-value Certificate. Attic ventilation may not be added to a sealed cavity.

1. Click on WA 10 Settings

    a. Length (ft): Enter the Length of the Mobile Home.
    b. Width (ft): Enter the Width of the Mobile Home
    c. Height (ft): Enter the Height of the Mobile Home.
    d. Inf Height: Enter the infiltration height measured from the floor to the highest point of the ceiling in the interior of the home, per ASHRAE 62.2.
    e. Wind Shielding: Choose the Wind Shielding of the Mobile home from the dropdown.
        i. A well-shielded home may be surrounded by thick vegetation, in a small valley that seldom experiences windy conditions, or closely surrounded by other homes and buildings.
        ii. A normally shielded home may be one that is found in a typical manufactured home housing park where there are surrounding homes and some surrounding vegetation.
        iii. An exposed home has no surrounding vegetation or buildings to protect it from the wind.
    f. Home Leakiness: Choose the Leakiness from the dropdown (This is a judgment call from the Blower Door Number)
        i. Home Leakiness Loose: Over 2200 CFM
        ii. Home Leakiness Medium: 1200-2200 CFM
        iii. Home Leakiness Tight: Under 1200 CFM
    g. Check the Box if the domestic water heater is outside.
    h. Check the box if the window screens are removed during the wintertime (ask the client)

i. Check the box for the Billing Adjustments (I don't know any reason why this would be checked)
j. Wind Shielding Factor: This is automatically entered when you select the weather station file.
k. Must click SAVE before you are allowed to continue.

2. Click on the + Housing Items Button

   a. **Wall**

      i. Stud Size: Choose Stud Size from the dropdown.
      ii. Orientation: This is the Orientation of the long wall.
      iii. Wall Ventilation: Choose the appropriate one from the dropdown list. In almost all cases, the proper response will be Not Vented. Vertically corrugated metal siding can be considered vented.
      iv. Uninsulatable Wall Area (SqFt): Enter the Uninsulatable Wall Area.
      v. Added Insulation Cost ($): In most cases, there will be no Insulation Cost. This is to be input if there is an unusual and unique extra cost to insulate this wall beyond the price defined in the library. Examples could include the additional cost of blowing from the inside or repairing the necessary siding before adding insulation.
      vi. Existing Insulation: Define the Existing Insulation. MHEA allows for the possibility of more than one type of insulation. Enter the thickness of each, with a 0 where there is none.
         1. Batt/Blanket (in): enter in the Amount (Enter in 0 if none)
         2. Loose Fill (in): enter in the Amount (enter in 0 if none)
         3. Foam Core (in): Enter in the Amount (enter 0 if none)
      vii. Check the Box if the Mobile home has a Carport/Porch Roof
         1. Length (ft): enter in the length
         2. Width (ft): enter the width.
         3. Orientation: Choose the orientation of the Carport/Porch Roof
      viii. Click The Save Button at the top left of the page
      ix. Click the X at the top right of the Wall page.

   b. **Window**
      approved-doors-and-windows.pdf

      i. **# Of Windows:** Enter the number of windows for each Direction for the exact dimensions. (Put 0 in the other direction if there are none) .
         a. North
         b. South
         c. East
         d. West
         e. Roof

c. **Door**
   i. Facing North: Enter how many doors are on the North side of the home. (Enter 0 if the code is for a door facing a different Direction)
   ii. Facing South: Enter how many doors are on the South side of the home. (Enter 0 if the code is for a door facing a different Direction)
   iii. Facing East: Enter how many doors are on the East side of the home. (Enter 0 if the code is for a door facing a different Direction)
   iv. Facing West: Enter how many doors are on the West side of the home. (Enter 0 if the code is for a door facing a different Direction)
d. **Ceiling**
   i. Roof Type: Choose the appropriate roof type from the dropdown. For a better visual of each roof type, see the picture below.

Flat Roof

Flat roofs have an interior surface (interior ceiling) and an exterior surface (exterior roof) attached directly to either side of the wood framing, similar to wall construction. MHEA assumes the ceiling and roof are separated by 2? x 6? framing.

Bowstring Roof

Bowstring roofs have a lightweight exterior roofing material (usually aluminum) that is stretched over the roof frame structure. The roof has a slight curve with the highest point in the middle of the home width. MHEA uses the home width and your input for Height of Roof at the center to calculate the volume of a bowstring roof section.

Pitched Roof

Pitched roofs are sloped to a higher peak point. When viewing the home width from the outdoors, the roof line creates a triangle. Pitched roofs are also often shingled, unlike flat and bowstring roofs. MHEA uses the width of the home and the assumed value for the roof pitch to calculate the volume of a pitched roof section.

   ii. Roof Color: Choose the Roof color from the dropdown list. Almost always Normal or Weathered. (Choose White, Reflective, or shaded only if the roof color is clean enough to function as a white roof or is mostly shaded)
   iii. Joist Size: Choose a Joist Size (For a Flat Roof)
   iv. Height of Roof at Center (in): Input Height from the top of existing insulation to the roof's highest point. (For Bowstring Roofs)
   v. Insulation to Add at Center (in): input total available height from ceiling to roof ridge. (For Pitched Roof)
   vi. Added Cost ($): Enter any additional cost of insulating this item. Enter the total, not the cost per square foot. This cost is not generally associated with insulation and, thus, needs to be accounted for in the Measure Cost Library. A Negative Addition cost will subtract from the computed cost. If a cost is entered, briefly explain the reason for the additional cost in the comment section.

vii. Define the Existing Insulation.
   1. Batt/Blanket (in): enter in value. Enter in 0 if there is none.
   2. Loose Fill (in): enter the value. Enter in 0 if there is none.
   3. Foam Core (in): enter in value. Enter in 0 if there is none.
viii. Cathedral Ceiling (%): If the home has Cathedral Ceilings, calculate the percentage of the total floor area with cathedral ceilings.
   1. (Cathedral room length / total mobile length) x 100)
ix. Step Wall Orientation: Choose the orientation of the step wall from the dropdown. (rare)
x. Click the Save button.
xi. Click on the X in the top right corner of the Ceiling screen.

e. **Floor**

https://mn.gov/commerce-stat/wap/MHEA_Floor_Repair_Tool.xlsx

i. Floor Joist Direction: Choose whether the joist runs Widthwise or Lengthwise.
ii. Check if there is a mobile home skirt present. If it covers only part of the home, the auditor must decide whether to call it present or not. Consider its ability to prevent wind across the belly.
iii. Floor Wing Joist Size: Choose the appropriate size from the dropdown.
iv. Wing Batt/Blanket Insulation Location: Choose the appropriate Location for the Batt/Blanket insulation from the dropdown
v. Batt/Blanket Thickness (in): Input the thickness of the Batt/Blanket.
vi. Loose Insulation Thickness (in): Input the thickness of the Loose insulation.
vii. Floor Belly Joist Size: Choose the appropriate size from the dropdown.
viii. Belly Cavity Configuration: Choose the configuration from the dropdown. (Rounded is most common)
ix. Condition of Belly: Choose the belly condition from the dropdown.
x. Maximum Depth of Belly Cavity (in): input the maximum depth. (Measure from the deepest part of the belly, if rounded.)
xi. Belly Batt/Blanket Insulation Location: Choose the appropriate Location for the Batt/Blanket insulation from the dropdown
xii. Batt/Blanket Thickness (in): Input the thickness of Batt/Blanket.
xiii. Loose Insulation Thickness (in): Input the thickness of loose insulation present.
xiv. Enter any comments in the comment section.
xv. Click the Save button at the top left of the screen.
xvi. Click the X on the top of the right side of the FLOOR MHEA screen to exit.

f. **Addition**
i. All Shell Elements of the Addition must be modeled here separately from the Shell Section.
ii. All inputs are essentially the same as what you have input preciously in the Mobile home Shell with one exception:
   1. Wall Configuration. There are three choices here, and they all refer to the slope of the ceiling within the addition.
      a. Maximum height at the interior wall: The ceiling is shed type and slopes away from the mobile home.

b. Maximum Wall Height in Center of Addition: Cathedral ceiling.

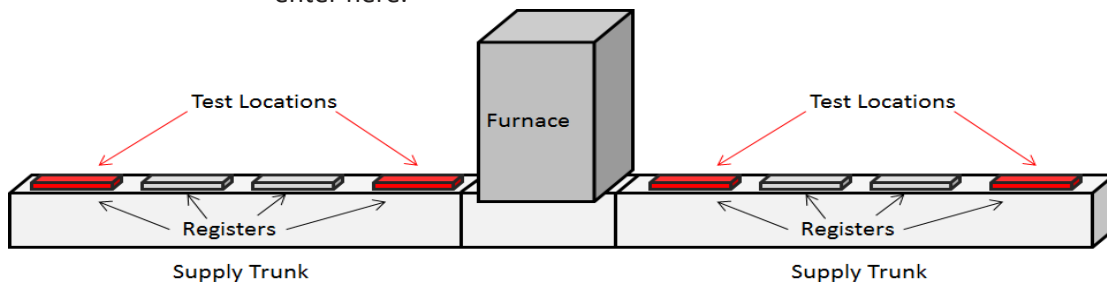c. All Addition Walls are the Same Height: the ceiling is flat.

g. **Air/Duct Leakage**

Manufactured Home
Ducts in the floor or attic cavities are considered outside the building envelope and will be modeled in WAPLINK Manufactured Home Energy Audit (MHEA) tool as an energy conservation measure. All ducts that have an SIR of 1.0 or greater (or .75 or greater for with EAPWX) will be sealed in accordance with SWS. The method of duct sealing will depend on the location of the leak in the duct system (see "Methods for Sealing Rigid Metal Ducts" below).

In modeling duct sealing and duct insulation outside the building envelope in WA-MHEA:

- Include duct sealing as part of a furnace replacement measure.
- Limited duct sealing may be modeled as a health and safety measure with reference to correcting issues with depressurization and natural drafting appliances.
- Model per guidance below for an Energy Conservation Measure:

1. In the [Air/Duct Leak] category, select the Evaluate Duct Sealing box and select Pressure Pan Measurements from dropdown.
2. Enter the following data:
   a. Before Duct Sealing – With the house depressurized to 50 Pa (WRT the outside) measure the pressure difference between each supply register and the house with a pressure pan and manometer. Enter the sum of all the measurements.
   b. After Duct Sealing – Enter the total number of supply duct registers in the home.
   c. Before Duct Sealing - With the air handler fan on, use a manometer and long static pressure probe to measure the supply duct pressures (WRT the interior) at the register nearest and farthest from the furnace for each supply trunk. Enter the average of the readings.
   d. After Duct Sealing – Add 5 Pa to the Before Duct Sealing pressure and enter here.

Seal the following areas (shown in red) as SIR allows in the following order:
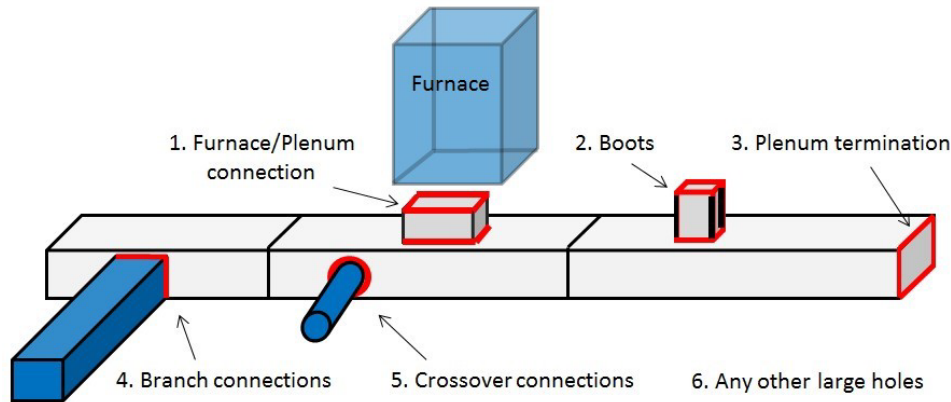
Figure labels:
1. Furnace/Plenum connection
2. Boots
3. Plenum termination
4. Branch connections
5. Crossover connections
6. Any other large holes

Furnace

i. Leakage Method: Check the Evaluate Duct Sealing to get additional funds for duct sealing. Extra on-site measurements will be required.
    a. Evaluate Duct Sealing. It MUST be checked if pressure pan results show greater than 3.0 Pa.

ii. Duct Leakage Method: Choose the appropriate Leakage method from the dropdown list.

iii. Infiltration Reduction Cost ($): Enter the amount you wish to receive for ALL air sealing measures on this home.

iv. Duct Sealing ($): Enter the amount for costs associated with duct sealing.

v. Duct Operating Pressures: (NOTE: Remember that you must perform the Duct Operating Pressure Test. Defaults will not be accepted but on very rare occasions.)
    a. Before Duct Sealing. Both Supply and Return static pressures need to be measured in the field. Typically, one is measured and then the other. Testing does not have to be simultaneous. Static duct pressures are measured with the furnace air blower on. The blower door must NOT be running.
    b. Supply static pressure: Inserting the manometer hose in the supply plenum is best. If this is not possible or practical, insert the hose in the nearest supply register and snake the hose as close as you can to the plenum. You can close the register through which you are testing or tape it shut to get a better reading.
    c. Return static pressure: Inserting the manometer hose in the return plenum is best. If this is not possible or practical, insert the hose in the nearest return register and snake the hose as close as you can to the plenum.

vi. Before Weatherization: Enter the blower door result achieved at pre-audit.

vii. After Weatherization: Enter the target blower door result.

viii. Remember that Always Use 50 if your manometer was set to Pa/CFM@50

ix. Before Duct Sealing (Existing): Input the data as measured in the field.

x. After Duct Sealing (Target or Actual):
    a. Total Leakage: 12% of the total conditioned floor area of the home
    b. Leakage to Outside: 8% of the total conditioned floor area of the home

xi. When Duct Sealing is checked, the method will always be by Pressure Pan in a Mobile Home. In the Duct Blower Measurement Section:
   a. Before Duct Sealing Duct Pressure (Pa): Total of all Pressure Pan Readings add together go here under the Outside * column (SEE 14A Label above)
   b. After Duct Sealing Target Duct Pressure (Pa): is the total number of registers in the mobile home. Go to the Outside * column. (See 14B Label above)
xii. Duct Sealing Cost. Input amount needed for duct sealing. SIR must be 1.0 or greater.
xiii. NEAT/MHEA will not accept $0 for duct sealing. If you cannot achieve a duct sealing measure with an SIR ≥ 1.0, then uncheck Evaluate Duct Sealing. See below for more information.
xiv. In Comments, you attempted duct sealing but could not get the measure with a SIR above 1.0.
xv. Your comment will remain even after you uncheck Evaluate Duct Sealing, as will the data you entered to attempt duct sealing.
xvi. Note that it is allowable to use Infiltration funds to seal ducts.
xvii. Click the Save button
xviii. Click on the X at the top right corner of the Air/Duct Leakage screen.

Priority List Process

Priority List Procedures for Site Built, Manufactured Homes, and Low-Rise Multi-Family Dwellings

Priority List Process
1. Service Provider will select household (HH) in WAPLink and select Priority List (PL) for this Household.
2. This will then populate the PL Dwelling Eligibility Checklist, Form A Audit Checklist, Form C Combustion Safety Checklist, and Form H Health and Safety Checklist. Additionally, a work order with a pre-set of measures associated with the specific housing type will be generated.
3. For PL, the SP is responsible to complete all the information in the checklists.

If SP answer is False to any question in the Priority Checklist, the SP will stop at this point, delete default PL work order, and move forward with a standard audit process but unselecting Priority List and selecting the appropriate audit event type.

If SP answer True to ALL questions in the Priority Checklist, then they will continue with PL process and continue completing the remaining checklists.

Field Guidance

Combustion Appliance Zone Depressurization Remediation Guidance

Measured Combustion Appliance Zone (CAZ) Pressure

1) A worst-case CAZ test will be completed as part of the energy audit process and again during the quality control inspection. The CAZ testing will be done in accordance with section 8.1 of the MN Weatherization Field Guide – SWS Aligned Edition in Appendix B.
2) If either test results in a worst-case CAZ depressurization that is negative two (-2) pascals or more negative than the CAZ depressurization limit, action can be taken to remediate the condition.
3) Guidance on CAZ testing, evaluation of test results, and potential remediation can be found in sections 8.1.4 - 8.1.6 of the MN Weatherization Field Guide - SWS Aligned Edition in Appendix B.
4) Cost and probable effectiveness will be considered when selecting remediation measures.
5) Remediation measures must follow all applicable policies including the Allowable Measures Chart in Appendix C.

Weatherization Readiness Funds (US DOE Sub Fund)

US DOE Weatherization Readiness Funds (WRF) policy is found in WAP Policy 6.2.1.1

PROCEDURE:

1. In WAPLink, the Measure Type must be "Readiness" and the Sub Measure Type must be selected to according to the appropriate work.
2. In WAPLink, the WRF Cost Center Type must be "Wx Readiness (WRF)" and added to the Cost Center page in the Agency Tab.
3. A work order will be created in WAPLink for an audit that has not yet been run. This is done by creating a new work order in a different client tab in WAPLink and changing the client ID and Audit Name associated with the work order to the correct Client and Audit Name.

SERC Windows

1. Open WL Measures.
2. Enter the measure name. This is the only required field.
3. For both State measures and manually entered measures, you can select criteria that apply to the measure by using the drop downs and check boxes on the WAPLink Measure Entry screen. Choose if the measure can be used in NEAT Choose if the measure can be used for an Audit, Standalone, or Pre-WX work order.

4. A WL Measure can be linked to a library measure from the audit run. When the audit returns the linked library measure, the Default Kit from the linked WL Measure will auto populate into the work order.
5. Click the WA 10 Links button on the WAPLink Measure Entry Page
6. Select the Library Measure(s) to link
7. Click Save
8. WL Measures can either include just a Material amount and a Labor amount (more common for contractor-based agencies), or it can include detailed lists of individual materials (more common for crew-based agencies).
9. Material/Labor costing only:
10. From the WAPLink Measure Entry screen, click the Materials/Labor button.
11. Enter your Material, Labor, and Other (optional) amounts. Including GL codes is optional.
12. Click Save

Healthy AIR

1. Open WL Measures
2. Enter the measure name.
3. For both State measures and manually entered measures, you can select criteria that apply to the measure by using the drop downs and check boxes on the WAPLink Measure Entry screen. Choose if the measure can be used in NEAT, MHEA, and/or EA-Quip (multiple can be selected). Choose if the measure can be used for an Audit, Standalone, or Pre-WX work order.
4. A WL Measure can be linked to a library measure from the audit run. When the audit returns the linked library measure, the Default Kit from the linked WL Measure will auto populate into the work order.
5. Click the WA 10 Links button on the WAPLink Measure Entry Page
6. Select the Library Measure(s) to link
7. Click Save
8. WL Measures can either include just a Material amount and a Labor amount (more common for contractor-based agencies), or it can include detailed lists of individual materials (more common for crew-based agencies).
9. Material/Labor costing only:
10. From the WAPLink Measure Entry screen, click the Materials/Labor button.
11. Enter your Material, Labor, and Other (optional) amounts. Including GL codes is optional.
12. Click Save

SERC WRAP

1. Open WL Measures
2. Enter the measure name.
3. For both State measures and manually entered measures, you can select criteria that apply to the measure by using the drop downs and check boxes on the WAPLink Measure Entry screen. Choose if the measure can be used in NEAT, MHEA, and/or EA-Quip (multiple can be selected). Choose if the measure can be used for an Audit, Standalone, or Pre-WX work order.

4. A WL Measure can be linked to a library measure from the audit run. When the audit returns the linked library measure, the Default Kit from the linked WL Measure will auto populate into the work order.
5. Click the WA 10 Links button on the WAPLink Measure Entry Page
6. Select the Library Measure(s) to link
7. Click Save
8. WL Measures can either include just a Material amount and a Labor amount (more common for contractor-based agencies), or it can include detailed lists of individual materials (more common for crew-based agencies).
9. Material/Labor costing only:
10. From the WAPLink Measure Entry screen, click the Materials/Labor button.
11. Enter your Material, Labor, and Other (optional) amounts. Including GL codes is optional.
12. Click Save

EAPWX Expansion Measure Specific Guidance

Audit Event Measures

Mold and Moisture Remediation with EAPWX Funds

POLICY: Up to $2,000/unit of EAPWX funds can be used to mitigate bulk mold/moisture. Funds can be used for cleaning/painting of building assemblies that have become moldy due to moisture intrusion and measures found in the Allowable Measures Chart such as grading, minor roof repairs, minor plumbing repairs, adding roof venting, and gutter installation/repair. These measures will not be included in the EAPWX health and safety average but will be included in the total audit event cost.

- Measures to address mold or moisture must be completed in conjunction with an audit event.
- Roof replacement is not allowed.
- Justification for mold and moisture remediation measures, including pictures must be kept in the client file.

PROCEDURES: In the audit, create a WL measure and mark as EXP.

Energy Modeling of LED Lightbulbs Not Required When Using EAPWX Funds

POLICY: Incandescent and CFL bulbs may be replaced with equivalent lumen LED light bulbs without energy modeling of each bulb. Replacement bulbs must be *ENERGY STAR® qualified, equivalent, or better, and UL approved.* (SWS 7.0103.1).

The number of bulbs per bulb type must be included in a work order measure(s). If WAP staff install bulbs, a Weatherization Assistant Work Order should be created with the service provider as the contractor.

PROCEDURES: In the audit, create a WL measure and mark as EXP.

Energy Conservation Cooling Measures Using EAPWX Funds

POLICY: EAPWX funds may be used to tune or replace existing cooling systems when an SIR of .75 or greater is met. "Select system that is ENERGY STAR® certified or equivalent," (SWS 5.0108).

- The SIR shall be based on the cost of a system that includes replacement of the compressor, condenser
  coil, and evaporator coil. A new air handler need not be included in the cost when determining the SIR.
- Any components replaced must result in a SEER2 15 or greater if all components were replaced.
  - Exception: If SEER2 15 cannot be achieved in a manufactured home, then a minimum of ENERGY STAR® certification is allowed.
- Cooling system repairs and replacements are limited to existing systems.
- Cooling system must be replaced with a similar make/model or an equivalent-cost, more efficient model.
  - For example, window units must be replaced with window units and central systems replaced with central systems.

PROCEDURES: FUTURE WORK

Audit Event Preferred Measures (Standalone Event Allowable)

Health and Safety Cookstove Replacement Using EAPWX Funds

POLICY: EAPWX funds can be used to replace primary gas cookstoves that pose a threat to client safety and are cost prohibitive to repair. The cookstove must be replaced with a similar make/model or an equivalent- cost, more efficient model. Fuel switching under these conditions is allowed. Only repairs are allowed to secondary units.

PROCEDURES: FUTURE WORK

Health and Safety Cooling Measures Using EAPWX Funds

POLICY: Up to $8,000 in EAPWX funds may be used to repair or replace an existing air conditioning system as a Health & Safety measure, when medically necessary, as identified through a letter from a licensed medical doctor, licensed physician assistant, or nurse practitioner. "Select system that is ENERGY STAR® certified or equivalent," (SWS 5.0108).

- Cooling system repairs and replacements are limited to existing systems.
- Cooling system may be replaced when it is cost prohibitive to repair.
- Cooling system must be replaced with a similar make/model or an equivalent-cost, more efficient model. For example, window units must be replaced with window units and central systems replaced with central systems.

- Any components replaced must be components that would result in a SEER2 15 or greater if all components were replaced.
  - For example, if the compressor and condenser coil are replaced, those systems need to be components that would result in a SEER2 15 or greater if the evaporator coil and air handler were also replaced.
  - Exception: If SEER2 15 cannot be achieved in a manufactured home, then a minimum of ENERGY STAR® certification is allowed.

PROCEDURES: FUTURE WORK

Standalone or Audit Event Measures

EAPWX Heating Plant Replacement for Energy Conservation

POLICY: For replacement through a deemed savings measure, the following must be met:

- Induced draft furnace of any efficiency or a heating system with an AFUE of 80% or lower; and
- is 10 years or older; and
- the new system must have at least a 10% gain in AFUE.

Replacements will be made for energy conservation reasons based on calculated deemed savings using the Technical Reference Manual instead of site-specific energy modeling. Select Energy Star Certified or equivalent heating plants. (SWS 5.0108.4)

PROCEDURE: EAPWX measure expansion heating system replacements for energy conservation can be completed as a Standalone Event or as part of an Audit Event. When part of an audit event service providers must follow the following procedure:

- Select the replacement mandatory option for heating system or water heating system replacements. This will result in WA creating a measure with an SIR less than 1.0 in the Recommended Measures list. Do not upload this measure into the work order.
  - The result will be that the energy savings of the new heating system will still have interacted with the predicted energy savings and SIRs of the energy conservation measures and incidental repair measures and the measure will not show up on the Measures with SIRs Less Than 1.0 report.
- Create an itemized cost for the EAPWX measure expansion heating system or water heating system replacement.
- Upload this itemized cost into a work order.
- Select the measure type as "HVAC".
- Select sub measure type as "EXP Heating System Replacement".
- If completing as only a Standalone Event, the Work Order Type should be "Standalone" and Standalone
  Type should be "Expansion Measures".

PROCEDURES: FUTURE WORK

EAPWX Water Heater Replacement for Energy Conservation

POLICY: Atmospherically drafting water heaters older than 15 years may be replaced with Energy Star rated power vented water heaters based on deemed savings as established through the Technical Reference Manual. "Select a system that: is ENERGY STAR® certified, equivalent, or better, includes a low nitrogen oxide burner, fits in the installation space with required clearances, provides sufficient hot water for the home and occupants" (SWS 7.0302.2). When water heaters with low nitrogen oxide burners are not readily available due to difficulties accessing these appliances in Minnesota for EAPWX Standalone water heater replacements, the SWS 7.0302.2b requirement for low nitrogen oxide burner is waived.

PROCEDURE: EAPWX measure expansion water heating system replacements for energy conservation can be completed as Standalone Events or as part of an Audit Event. When part of an audit event service providers must follow the following procedure:

- Select the replacement mandatory option for heating system or water heating system replacements. This will result in WA creating a measure with an SIR less than 1.0 in the Recommended Measures list. Do not upload this measure into the work order.

    o The result will be that the energy savings of the new heating system will still have interacted with the predicted energy savings and SIRs of the energy conservation measures and incidental repair measures and the measure will not show up on the Measures with SIRs Less Than 1.0 report.
- Create an itemized cost for the EAPWX measure expansion heating system or water heating system replacement.
- Upload this itemized cost into a work order.
- Select the measure type as "Baseloads".
- Select sub measure type as "EXP Water Heater Replacement".
- If completing as only a Standalone Event, the Work Order Type should be "Standalone" and Standalone Type should be "Expansion Measures".

PROCEDURES: FUTURE WORK

EAPWX Cold-Climate Air Source Heat Pump Installation for Energy Conservation

POLICY: LIHEAP funds may be used to install Cold-Climate Air Source Heat Pumps (CCASHPs) in the homes of weatherization clients for whom baseboard or ducted electric resistance is the primary heat source and where this heat source will remain as a back-up heat source.

Equipment Selection:
- Equipment must be selected from the **Northeast Energy Efficiency Partnership's (NEEP) Cold Climate Heat Pump List.**
- Per SWS 5.0108.1, 5.0108.3, equipment must be EnergyStar rated. Installation Standards:
- **Best practices from the MN ASHP Collaborative** and SWS 5.0108.1, 5.0108.3 must be

followed.

Heat Pump Controls:
- Ducted heat pump thermostatic controls must be tied together with any other heating source supplied through the ductwork.
- Non-ducted heat pumps installed in homes with electric baseboard heat need not be tied into the electric baseboard thermostatic controls.
- All electric baseboard heat should be thermostatically controlled.
- Adding thermostatic controls as part of heat pump installation is allowed. Controls with user friendly features such as digital readouts installed at an accessible height are preferred.

Off Peak Rate Customers:
- Customers on off-peak electricity rates will be considered on a case-by-case basis.
- Service providers wishing to pursue the possibility of adding a CCASHP to the home of a weatherization. client who has off-peak electric heat should contact **weatherization.commerce@state.mn.us.**

PROCEDURE: EAPWX measure expansion for CCASHP installations for energy conservation can be completed as Standalone Events or as part of an Audit Event must be standalone work orders in Weatherization Assistant. These standalone work orders may be created as standalone events or part of an audit event. When part of an audit event service providers must follow the following procedure:
- Select the replacement mandatory option for heating system or water heating system replacements. This will result in WA creating a measure with an SIR less than 1.0 in the Recommended Measures list. Do not upload this measure into the work order.
  - The result will be that the energy savings of the new heating system will still have interacted with the predicted energy savings and SIRs of the energy conservation measures and incidental repair measures and the measure will not show up on the Measures with SIRs Less Than 1.0 report.
- Create an itemized cost for the EAPWX measure expansion CCASHP system installation.
- Upload this itemized cost into a work order.
- Select the measure type as "HVAC Systems".
- Select sub measure type as "EXP CCASHP Installation".
- If completing as only a Standalone Event, the Work Order Type should be "Standalone" and Standalone Type should be "Expansion Measures."

PROCEDURES: FUTURE WORK

REFERENCES:
- "Primary Heating System" is defined in policy in Minnesota Weatherization Assistance Program policy 4.4.2.1 in this way: "The primary system (or system of units) is the heating plant system that is most relied upon to provide heating through-out the season. The secondary system or unit is a system

employed only in extreme weather."
- Center for Energy and the Environment (CEE) CCASHP study: Cold Climate Air Source Heat Pump (state.mn.us)
- CEE Field research observed energy usage for a CCASHP displacing electric baseboard heat in homes in the Twin Cities Metro Area and in northern Minnesota.
- Observed energy and cost savings ranged from 53% to 56% for homes in the northern Minnesota and the metro area, respectively
  - o Minnesota Air Source Heat Pump Collaborative Website: https://www.mnashp.org
  - o MN Potential Study: https://www.mncee.org/minnesota-potential-study
    - 270,000 single family and multifamily homes in MN use electric baseboard heat as a primary heat source, and nearly 90,000 single family and multifamily homes have electric furnaces as a primary heat source.
    - 153,000 electrically heated residential single-family homes in Minnesota that use 3,25 GWh annually to heat their homes. For an approximate average single-family space heating use of 22,000 kWh per year.
  - o Northeast Energy Efficiency Partnerships
  - o Air Source Heat Pump Installer and Consumer Resources | Northeast Energy Efficiency Partnerships (neep.org)
  - o CEE Wisconsin Study FOCUS ON ENERGY EERD REPORT

Audit Event - Energy Audit Diagnostic Tests

CAZ Depressurization tests are not required in dwellings where all space and water heating plants are electric.

General Tests

1. Blower Door @ 50 Pa – A pressurized blower test will be performed if a home contains vermiculite (BPI 1200 - 2017, 10.2)
2. Attic Zonal Pressures (with respect to outside) – Optional if needed to guide air sealing activities
3. Test Existing Smoke & CO Detectors – replace units that are non-functional, or over 5 years old (manufacturers date) (1.3 MN Weatherization Reference Guide)
4. Pressure Pan Test (ducts outside thermal envelope) (8.13 MN Weatherization Reference Guide)
5. Gas Cookstove CO Tests (oven) (BPI 1200 - 2017, 7.9, Table 1)
6. Gas Cookstove Test for Fuel Leaks (accessible lines) (BPI 1200 - 2017, 7.5)
7. Ambient CO test in kitchen and living area (BPI 1200 - 2017, 7.3.3)
8. Exhaust Fan Flow Test (CFM) (BPI 1200 - 2017, I.3)

Water Heater

1. Test for Fuel Leaks (BPI 1200 - 2017, 7.5)
2. Water Heater Combustion Analysis/CO in Flue (8.3 MN Weatherization Reference Guide, BPI 1200 - 2017, Table 1 for CO thresholds, or AHJ whichever is more stringent)

- PVC test holes must be plugged with threaded, gnarled screws to create a tight seal
3. CAZ Depressurization Test (BPI 1200 - 2017, 7.9)
4. Combustion Spillage Test (BPI 1200 - 2017, 7.9)
5. Hot Water Temperature (10.4 MN Weatherization Reference Guide)

Heating Plant

1. Test for Fuel Leaks (BPI 1200 - 2017, 7.5)
2. Heating Plant Combustion Analysis/CO in Flue (8.3 MN Weatherization Reference Guide, PI 1200 - 2017, Table 1 for CO thresholds or AHJ whichever is more stringent)
   - PVC test holes must be plugged with threaded, gnarled screws to create a tight seal
   - When a heating system manufacturer does not allow drilling of a metal flue, use a combustion analyzer to test ambient CO at the front of the heating system cabinet and in the closest supply register.
3. Test Furnace Shutoff Switch (8.5 MN Weatherization Reference Guide)
4. Heat Rise Test on Furnace (8.3.1 MN Weatherization Reference Guide)
5. CAZ Depressurization/Combustion Spillage Test – This test required on natural draft appliances equipped with a barometric draft control or Category I appliances equipped with a draft hood or connected to a natural draft venting system. (BPI 1200 - 2017, 7.9)
6. Ambient CO Test in Mechanical Room and Living Space (BPI 1200 - 2017, 7.3.3)
7. Smoke Test on Oil Furnace/Oil Water Heater (8.6 MN Weatherization Field Guide)
8. Heat Exchanger Integrity - Visual Inspection (8.7 MN Weatherization Field Guide)
9. Heat Exchanger Integrity - Oxygen Concentration Test (8.7 #4 MN Weatherization Field Guide)

Space Heater (including gas fireplaces)

1. Test for Fuel Leaks (BPI 1200- 2017, 7.5)
2. Combustion Analysis/CO in Flue (As feasible) (8.1 MN Weatherization Reference Guide, BPI 1200 - 2017, Table 1 for CO thresholds, or AHJ whichever is more stringent)
3. CAZ Depressurization/Combustion Spillage Test (As feasible) – This test required on natural draft appliances equipped with a barometric draft control or Category I appliances equipped with a draft hood or connected to a natural draft venting system. (BPI 1200- 2017, 7.9)

Audit Event - QCI Diagnostic Tests

CAZ Depressurization tests are not required in dwellings where all space and water heating plants are electric.
General Tests

1. Blower Door @ 50 Pa – A pressurized blower test will be performed if a home contains vermiculite (BPI 1200 - 2017, 10.2)
2. Attic Zonal Pressures (with respect to outside)

3. Test Existing Smoke & CO Detectors (1.3 MN Weatherization Reference Guide)
4. Pressure Pan Test (ducts outside thermal envelope) (8.13 MN Weatherization Reference Guide)
5. Gas Cookstove CO Tests and Fuel Leak Test (burners and oven, if clean and tune was called for) (BPI 1200 - 2017, 7.9, Table 1)
6. Exhaust Fan Flow Test (on units that have been repaired or replaced) (BPI 1200 - 2017, I.3)
7. Ambient CO Test - Mechanical Room(s) & Living Space (BPI 1200 - 2017, 7.3.3)
8. Verify dense packed insulation (visual inspection, infrared with blower door, or chemical smoke)

Water Heater

1. Test for Fuel Leaks (BPI 1200 - 2017, 7.5)
2. Water Heater Combustion Analysis/CO in Flue (8.3 MN Weatherization Reference Guide, BPI 1200 - 2017, Table 1 for CO thresholds, or AHJ whichever is more stringent)
   - PVC test holes must be plugged with threaded, gnarled screws to create a tight seal
3. CAZ Depressurization Test (BPI 1200 - 2017, 7.9)
4. Combustion Spillage Test (BPI 1200 - 2017, 7.9)
5. Hot Water Temperature (if replaced or repaired) (10.4 MN Weatherization Reference Guide)

Heating Plant

1. Test for Fuel Leaks (BPI 1200 - 2017, 7.5)
2. Heating Plant Combustion Analysis/CO in Flue (8.3 MN Weatherization Reference Guide, BPI 1200 - 2017, Table 1 for CO thresholds or AHJ whichever is more stringent)
   - PVC test holes must be plugged with threaded, gnarled screws to create a tight seal
   - When a heating system manufacturer does not allow drilling of a metal flue, use a combustion analyzer to test ambient CO at the front of the heating system cabinet and in the closest supply register.
3. CAZ Depressurization/Combustion Spillage Test – This test is required on natural draft appliances equipped with a barometric draft control or Category I appliances equipped with a draft hood or connected to a natural draft venting system. (BPI 1200 - 2017, 7.9)
4. Test Furnace Shutoff Switch (8.5 MN Weatherization Reference Guide)
5. Heat Rise Test on Furnace (8.3.1 MN Weatherization Reference Guide)
6. Ambient CO Test in Mechanical Room and Living Space (BPI 1200 - 2017, 7.3.3)
7. Smoke Test on Oil Furnace/Oil Water Heater (on units that have been repaired or replaced) (8.6 MN Weatherization Reference Guide)
8. Room Balancing (on forced air heating plant) (8.13.3 MN Weatherization Reference Guide)

Space Heater (including gas fireplaces, when work has been completed)

1. Test for Fuel Leaks (BPI 1200 - 2017, 7.5)
2. Combustion Analysis/CO in Flue (As feasible) (8.3 MN Weatherization Reference Guide, BPI 1200 - 2017, Table 1 for CO thresholds or AHJ whichever is more stringent)

3. CAZ Depressurization/Combustion Spillage Test (As feasible) – This test is required on natural draft appliances equipped with a barometric draft control or Category I appliances equipped with a draft hood or connected to a natural draft venting system. (BPI 1200 - 2017, 7.9)

US DOE Callback

PROCEDURE (per WPN 11-3):
1. The previously completed unit must be taken out of the US DOE reporting system and the associated costs subtracted from the US DOE fund category.
2. The US DOE Project Officer must be notified in writing of the number of units, total costs, and reporting period (monthly, quarterly, or both) for any units that are to be backed out of the US DOE reporting system.
3. The Project Officer will then reject the report so that the revised reporting adjustments can be made.
4. Commerce must coordinate with its financial office to ensure the appropriate accounting methods follow federal cash management procedures.
5. After making any necessary repairs or other callback measures, the Service Provider must re-inspect the unit and report the completion to Commerce.
6. Commerce will then report the unit to US DOE, including all final costs for the unit, in the month the completed work takes place.

WAPLink Procedure: FUTURE WORK

EAPWX Callback

PROCEDURE:
1. Submit a request to Commerce that includes the proposed scope of work, including all cost estimates, non-US DOE resources to be used, photographs, warranty, client notes, insurance information, and other pertinent information.
2. If approved:
    a. If the client is currently eligible, create a Callback Event in WAPLink.
    b. If the client is not currently eligible, submit a request to Commerce to add the client to the Home queue. When the client is added to Home queue, create a Callback Event in WAPLink.
3. Add measure details to the callback work order.
4. Complete the approved scope of work.
5. Inspect the completed work in accordance with Section 4.6. An on-site inspection by a Commerce staff member may also be required.
6. Notify Commerce that the callback work is completed and submit pictures of the completed work. Commerce may require additional reporting.

Standalone Event

A Standalone Event is a method of delivering services in the Weatherization Assistance Program (WAP) that focuses on the health and safety measures related to a dwelling's space and water heating systems. A standalone event can be funded with either EAPWX or Propane funds and has different requirements than an Audit Event.

PROCEDURE:
1. All Standalone Events must be created in WAPLink.
2. Do not change an Audit Event work order name or measure type to create a Standalone Event work order.
3. Use the default work order name "Standalone".
4. For Emergency Standalones, set the Work Order Type in the work order as "Standalone" and the Standalone Type as "Emergency".
5. For Non-Emergency Standalones, set the Work Order Type in the work order as "Standalone" and the Standalone Type as "Non-Emergency".
6. For EAPWX Expansion Measure Standalones, set the Work Order Type in the work order as "Standalone" and the Standalone Type as "Expansion Measures".
7. When filling out measure details in the work order, ensure that the Measure Type and Sub Measure Type dropdowns are selected in the Measures Tab.
8. Conduct work in accordance with the Standard Work Specifications and SWS Aligned Field Guide (See Appendix B, Field Guidance - Retrofitting Minnesota, Standard Work Specification - Aligned Field Guide)

Standalone Event – Quality Control Inspection Tests

CAZ Depressurization tests are not required in dwellings where all space and water heating plants are electric.
General Tests

    1. Ambient CO test in kitchen and living area (BPI 1200 - 2017, 7.3.3)

Water Heater

    1. Test for Fuel Leaks (BPI 1200 - 2017, 7.5)
    2. Water Heater Combustion Analysis/CO in Flue (8.3 MN Weatherization Reference Guide, BPI 1200 - 2017, Table 1 for CO thresholds, or AHJ whichever is more stringent)
       • PVC test holes must be plugged with threaded, gnarled screws to create a tight seal
    3. CAZ Depressurization/Combustion Spillage Test. This test is required on natural draft appliances equipped with a barometric draft control or Category I appliances equipped with a draft hood or connected to a natural draft venting system. (BPI 1200 - 2017, 7.9)
    4. Hot Water Temperature (if replaced or repaired) (10.4 MN Weatherization Reference Guide)

Heating Plant

1. Test for Fuel Leaks (BPI 1200 - 2017, 7.5)
2. Heating Plant Combustion Analysis/CO in Flue (8.1 MN Weatherization Reference Guide, BPI 1200 - 2017, Table 1 for CO thresholds, or AHJ whichever is more stringent)
   - PVC test holes must be plugged with threaded, gnarled screws to create a tight seal
   - When a heating system manufacturer does not allow drilling of a metal flue, use a combustion analyzer to test ambient CO at the front of the heating system cabinet and in the closest supply register.
3. CAZ Depressurization/Combustion Spillage Test. This test is required on natural draft appliances equipped with a barometric draft control or Category I appliances equipped with a draft hood or connected to a natural draft venting system. (BPI 1200 - 2017, 7.9)
4. Test Furnace Shutoff Switch (8.5 MN Weatherization Reference Guide)
5. Heat Rise Test on Furnace (8.3.1 MN Weatherization Reference Guide)
6. Ambient CO Test in Mechanical Room(s) and Living Space (BPI 1200 - 2017, 7.3.3)
7. Smoke Test on Oil Furnace/Oil Water Heater (on units that have been repaired or replaced) (8.6 MN Weatherization Field Guide)

Space Heater (including gas fireplaces)
1. Test for Fuel Leaks (BPI 1200 - 2017, 7.5)
2. Combustion Analysis/CO in Flue (As feasible) (8.1 MN Weatherization Reference Guide, BPI 1200 - 2017, Table 1 for CO thresholds, or AHJ whichever is more stringent)
3. CAZ Depressurization/Combustion Spillage Test. (As feasible) This test is required on natural draft appliances equipped with a barometric draft control or Category I appliances equipped with a draft hood or connected to a natural draft venting system. (BPI 1200 - 2017, 7.9)

Hierarchy of Housing Needs

Service Providers prioritize work orders for weatherization projects uniquely based on a Hierarchy of Housing Needs (see illustration below) set forth by the auditor on the project.

There are advantages to prioritizing work and designing mechanical systems for existing homes. First, the home provides an observable history from which to work. Stained ceilings, peeling paint, and mold and moisture all tell the story of how a building operates. The customer may identify problems not immediately apparent, such as periodic back drafting of combustion appliances. In addition, the existing home has already aged, allowing lumber to dry and modern materials to out-gas, reducing the pollutant load on the ventilation system.

Procedure:

1. Identify and remedy any immediate health and safety issues.
2. Identify any major sources of moisture and other pollutants and remove them or seal them away from the house. No ventilation system can effectively handle excess amounts of any pollutants.
3. Complete shell measures to ensure reliable pressure and thermal boundaries. The mechanical systems depend on these measures to operate effectively.

4. The choice of ventilation equipment will depend upon the building's structure, airtightness, client needs, and mechanical systems. Many homes may require only exhaust fans.
5. A blower door test and an assessment of the home's existing ventilation will provide the information to determine the home's ventilation needs. There are situations where balanced ventilation may be more appropriate.

There may be times where mechanical work will need to be done first and other times, based on the home's safety and needs, where mechanical work will need to be done somewhere during the project or even at the end of the weatherization project.

The following list is an example of starting at the beginning and working your way up. As air tightness improves, building features also advanced.

This is a general list and is not an exact prescriptive list for every home. All testing requirements remain the same and client education is prioritized and emphasis throughout the project to be successful.
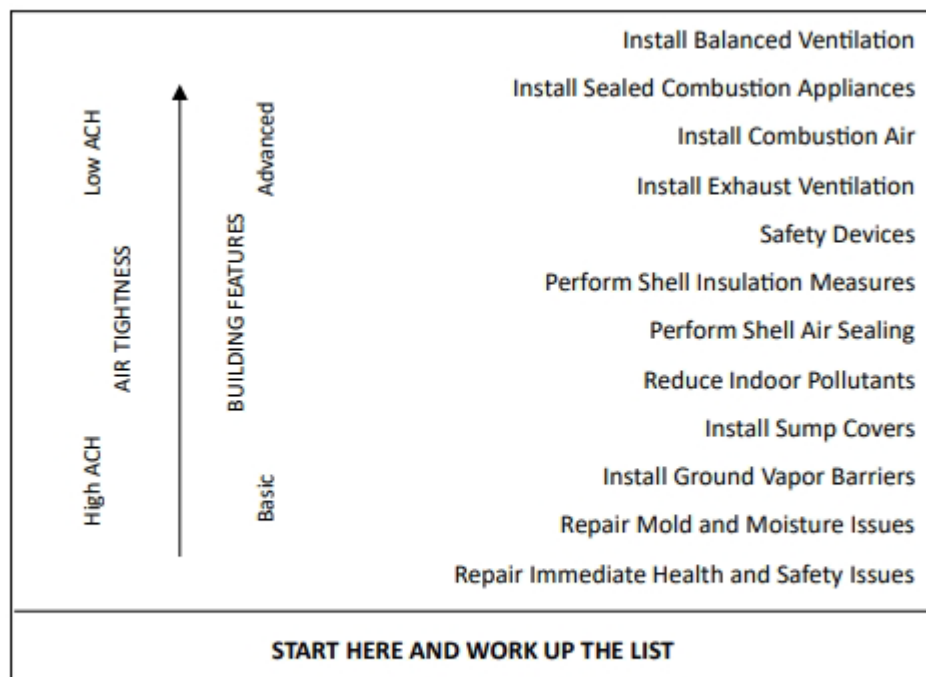
(Credit – Wisconsin's State Weatherization Field Guide)

Crawlspace Guidance

Crawlspace accessibility

Crawlspaces are evaluated for accessibility as part of the energy audit process.

1. A crawlspace is determined to be accessible if there is sufficient space for a person to safely enter the entire area to conduct required work such as: energy audit procedures, installation of measures, and a final inspection.
   - In cases where the access point does not exist or is too small for a person to safely enter the crawlspace, an access point can be created or increased in size provided that the process does not compromise the structural integrity of the building.

2. A crawlspace is determined to be inaccessible when any of the above conditions cannot be met.

Crawlspace pressure boundary

Crawlspaces are evaluated to determine the location of the pressure boundary as part of the energy audit process.

1. A crawlspace is determined to be within the pressure boundary of a dwelling when the measured pressure in the crawlspace changes by 5 pascals or more when the dwelling is pressurized or depressurized to 50 pascals beyond the baseline pressure.
   - In cases where a crawlspace is clearly open to the conditioned space it can be assumed to be within the pressure boundary.

2. A crawlspace is determined to be outside the pressure boundary of a dwelling when the measured pressure in the crawlspace changes by less than 5 pascals when the dwelling is pressurized or depressurized to 50 pascals beyond the baseline pressure.

Course of Action (when to proceed & when to defer)

Based on the evaluation of the conditions of the crawlspace, Auditors must determine the course of action. They can either proceed with weatherization and determine the allowable measures to address the crawlspace or recommend deferral when the situation warrants.

1. **Accessible basements and crawlspaces within the pressure boundary**
   In cases where basements and crawlspaces are accessible and within the pressure boundary. In addition to the normal energy audit procedure, the following steps must be taken:
   a. All exposed soil and sump systems will be covered in accordance with the SWS.
   b. Ventilation will be installed in accordance with the ASHRAE 62.2-2016 standard.

2. **Inaccessible crawlspaces within the pressure boundary**
   In cases where the crawlspace is not accessible, and it is within the pressure boundary additional evaluation is required to determine the appropriate course of action. The energy auditor must inspect the interior areas surrounding the crawlspace and the exterior grading for signs of bulk moisture entry and mold. Where possible, the inaccessible area must be evaluated via camera or borescope for similar conditions. Then the auditor must take one of the following courses:
   a. In cases where a small percentage of the footprint of a home is an inaccessible crawlspace (i.e. the size of a small bedroom ~120 sq. ft.) and the condition of the surrounding area is dry, work may proceed with work on the home following the steps

outlined in #1 for all accessible basements and crawlspaces. If signs of minor or past moisture are present, the auditor will proceed using the approach described in 2b.

b. In cases where a moderate portion of the footprint of the home is an inaccessible crawlspace (i.e. the size of 1-3 rooms ~360 sq. ft.) and the condition of the surrounding area is dry or shows signs of minor or past moisture, the auditor will call for an ASHRAE 62.2-2016 ventilation system to be installed that negatively pressurizes the inaccessible space by drawing air from the crawlspace and exhausting it outside. The flow rate of the fan must be variable, and a negative pressure must be measurable in the crawlspace when the fan is activated (>-2 pa with reference to the house). Air sealing between the inaccessible crawlspace and the rest of the house may be needed in some cases to create a sufficient negative pressure. All other accessible basements and crawlspaces will be treated as described in #1.

c. In cases where a large portion of the home's footprint is an inaccessible crawlspace (i.e. more than half of the footprint) or there is a situation that is beyond the scope of allowable weatherization activities to correct, the home must be deferred. Some examples of deferral conditions include moderate to severe moisture, mold, drainage, or other issues are in the judgement of the auditor cannot be corrected with allowable measure (Allowable Measures Chart – Appendix C)

d. As a best practice, if in any of the situations described in 2a-2c. a portion of an inaccessible crawlspace can be accessed a partial ground moisture barrier will be installed even if not all aspects of the SWS cannot be met. (i.e. the case of a very low clearance crawl space that persons cannot safely enter, but a vapor barrier can be spread across the area with a long pole or tool.)

3. **Any crawlspaces not within the pressure boundary**
In cases where pressure diagnostic tests demonstrate that a crawlspace or foundation is not within the pressure boundary, it is not part of the house as a system and does not constitute a deferral. Examples include:

a. Foundation under a small entryway
b. Cantilevered floor with vented skirting (site built or mobile home).

Solid Fuel Fired Appliance and Chimney Guidance

Visual Inspection:

During an energy audit, existing solid fuel fired appliances, venting, and chimneys shall receive a visual inspection for compliance with NFPA 211/manufacturer's installation instructions. The visual inspection shall be in accordance with the Minnesota Weatherization Field Guide sections 8.8 for wood stoves; 8.9 for solid fuel venting systems; and 8.10 for solid fuel chimney systems. The inspection shall assess the condition of the stove/firebox, venting connectors, and chimney including clearances, terminations, combustion air, and creosote build-up. Non-code compliant appliances, venting, and chimneys that can be corrected as part of the weatherization work must be corrected. In cases where appliances, venting, and chimneys do not meet code and a necessary corrective measure is not related to weatherization work, the solid fuel fired appliance must be made inoperable or the home must be deferred.

CAZ Testing:

Auditors and inspectors shall conduct pre- and post- weatherization worst case CAZ depressurization testing in the Combustion Appliance Zone (CAZ) of any solid fuel fired appliances. The CAZ depressurization limit for solid fuel fired appliances is -5 PA.

Client Education:

Clients shall be informed of any deficiencies in their solid fuel fired appliances, venting, and chimneys and if weatherization can remediate these issues. Those clients having fireplaces shall also be informed that near the end of a wood fire, glowing coals will remain, radiating heat, while the draft lowers and allows the top of the chimney to cool, further reducing draft. The reduced oxygen available to the glowing coals causes production of CO without the smoke that encourages space ventilation. This has the potential to cause CO poisoning from an unexpected source—a smoldering fire.

Carbon Monoxide Alarms:

Carbon monoxide alarms must be installed within the combustion appliance zone of any solid fuel fired appliances.

Fire Extinguisher Installation:

Fire extinguishers may be installed in cases where solid fuel is burned as part of the primary heating system.

ASHRAE Guidance | Frequently Asked Questions (FAQ)

Q. How do I measure building height?

    A. Per DOE Guidance, SP is to measure the lowest point above grade (excludes window wells) to the highest point of the conditioned space (ceiling or peak). For manufactured homes, enter the height of the home measured from the floor to the highest point of the ceiling in the interior of the home.

Q. What area do I consider for calculation for sq ft?

    A. Space that is conditioned year-round and meets the ANSI Z764 definition of "finished area" which is: "An enclosed area in a house that is suitable for year-round use, embodying walls, floors, and ceilings that are similar to the rest of the house." A decrease in "finished" area will result in a lower continuous ventilation requirement.

Q. When selecting an airport in WA, should Service Providers use the closest airport? Or should I use the same airport for every home in my area?

A. Climate information can impact energy modeling outputs, including Savings to Investment Ratio (SIR). WAPLink offers Minnesota users a Weather File drop list located in the WA 10 Setting tab. Users should select a city close to the client's home that has similar weather using the drop-down list in the Weather File field. Commerce recommends that auditors select the airport/location that is the closest distance to their client, even if that may vary within the geographic area of your organization. This will provide the most accurate calculations within the ASHRAE tool.

Q. Must exhaust fans always be installed to meet the ASHRAE 62.2 2016 ventilation standard?

A. No. While exhaust fans are the most common method of meeting ASHRAE 62.2, they are not the only method. In fact, considering the high price of exhaust fan installations, now more than ever Service Providers should consider the ASHRAE 62.2 standard in its entirety and not just presume that a low-sone continuously running exhaust fan is the best solution. A few things to consider:
- Controlling Costs:
    - Considering high health and safety costs statewide, Service Providers should attempt to find the least expensive method of meeting ASHRAE 62.2 for each home, a method that is both compliant and effective.
- The Relationship Between Continuous and Local Ventilation:
    - ASHRAE 62.2 has both a whole building ventilation and a local ventilation requirement.
    - ASHRAE 62.2 provides an alternative path to meeting the local ventilation requirement through additional whole building ventilation.
    - The alternative path is most often used in weatherization and was designed to meet ASHRAE 62.2 in existing homes while installing less ventilation equipment.
- Installing more than one piece of ventilation equipment should be rare.
- Improving existing local ventilation equipment, either through fan cleaning or vent duct improvements, can remove local ventilation deficits thus lowering the amount of continuous ventilation required. This approach could result in a lower priced equipment being utilized, or even a scenario with the calculated ventilation requirement under 15 CFM and no additional equipment being required. A small investment in improving existing equipment could mean a lower total cost expenditure to meet ASHRAE 62.2 requirements.
- Minnesota Weatherization Audit Process Review:
    - The last section of the Minnesota Weatherization Audit Process Review Training on Commerce's Learning Management System covers this topic in detail. Please review this section of the training.

Q. What factors does Commerce consider when assessing Service Provider requests to repair or replace heat recovery ventilators (HRVs) and energy recovery ventilators (ERVs)? What information should be included in these requests?

A. Service providers should submit information on the following items when requesting to repair or replace HRVs:

- Cost Comparison: The cost of a repair or replacement should be less expensive than, or reasonably close to, the cost of the alternative exhaust only ventilation.
- HRV/ERV Maintenance and Client Education: Because HRV/ERVs require more regular maintenance than exhaust only ventilation, Service Providers must deliver client education related to maintenance. The client must be willing and able to perform regular maintenance, especially cleaning or changing of filters.
- HRV/ERV Testing: Whether providing exhaust only or balanced ventilation, Service Providers or their contractor must demonstrate the HRV/ERV meets the ASHRAE 62.2 2016 standard at the onsite inspection.

Q. What if I get a high CFM number, can I install 2 fans?

A. We would ask that you consider all options including an HRV/ERV. Depending on the fan selected, they can only operate to a certain CFM continuously.

Q. What are the requirements for the fan?

A. Sone 1.0 or less, designed for continuous use, and Energy Star with a manual override.

Q. Do I need a shut off or can the breaker be sufficient?

A. The "control" required by the standard can be the circuit breaker if it is properly labeled. Ensure the fan can be disconnected and accessible for service and inform the client as part of the client education how to service and maintain the equipment.

Q. What are my options for variable speed?

A. You can install a switch for low and high use or a motion sensor that detects the need to ramp up.

Q. What is the minimum time to run the high side of the fan?

A. 10 minutes.

Q. Should the fan be tested at both low and high speed at the QCI and how to do this?

A. Yes, it is important to get both readings. If using high/low switch – take both measurements, if using motion, tape off sensor and adjust timer to lowest value once it is on low – take measurement.

Q. How do I test HRV/ERVs?

A. Training on testing HRV/ERV's is currently being developed. Ensure existing systems are sized adequately to meet ASHRAE standards and ensure the system is balanced. This information must be measured and provided by the installing contractor. Once training is developed, this FAQ will be updated.

Q. Do I count bath fans in ½ baths or just areas with a tub and shower?

A. Include all exhaust fans regardless of location.

Q. What if we don't achieve air sealing goals and we install an ASHRAE fan and now it is below 15 cfm?

A. Make notes in WA as to why you believe occurred and try to avoid making a similar mistake in the future.

Q. What are the kitchen fan requirements?

A. If a kitchen fan is being used to meet ASHRAE 62.2, requirements for continuous flow are based on the calculation with a sone rating of 1.0 or less and Energy Star. If it is used for spot ventilation, then flow must be equal to or greater than 100 cfm and 3 sones or less and Energy Star.

Q. Can I install or replace spot ventilation fans for H&S reasons for moisture and cooking?

A. Depending on the outcome desired for a particular project, there are times where additional ventilation may be installed or replaced. If a bath fan is installed only for spot ventilation, the flow must be equal to or greater than 50 cfm and 2 sones or less and Energy Star. Make notes in the H&S tab for justification.

Air Sealing Guidance | Frequently Asked Questions (FAQ)

Q. Is there a minimum target goal?

A. No, however, the general rule of thumb is 30% goal. Testing diagnostics and visual inspections noted by the auditor should help steer the direction of the goal.

Q. Do all homes need air sealing? What needs to be air sealed in every home?

A. Yes, 4.4.2.8 Air Sealing POLICY: Infiltration reduction will be modeled in all dwellings. All work must be completed in accordance with the SWS. Required air sealing for all dwellings must include the following:
- Chimney and flue bypasses
- Soil stack bypasses
- Exhaust fan bypasses

Dense packed insulation is an allowed air sealing technique for inaccessible building assemblies such as: cantilevers, bay window attics, drop soffits, etc. The air sealing must be either an ECM or IRM and the cost and bag count must be detailed in the air sealing measure in WA and verified by the QCI.

Soffits that are open to the attic should be covered with a rigid material (drywall, rigid foam, plywood) and sealed. Soffits connected to an exterior wall must be covered and dense packed with cellulose. See SWS 3.0102.9.

If an auditor feels there should be no air sealing completed on a home and can verify that the minimum requirements are met (above), then justification in WA is needed.

Q. Can I plug anything during the blower door test?

A. Yes, HRV/ERVs may be plugged during the blower door test. This aligns with current building code testing. Document and ensure all subsequent tests follow the same process.

Q. Can I rerun the audit if I get a tighter home than expected to get a higher SIR?

A. Unless mistakes are made during a test, such as pre-install number is a lot different than audit, or something changes in the home from the time of audit, air infiltration numbers should not be re- ran.

Q. Do top plates need to be air sealed on all homes?

A. This is a best practice of those achieving high air sealing reductions in homes. Follow 2.1 of the MN SWS Aligned Field Guide.

Q. Do we need IR cameras?

A. While IR cameras are not a required tool, they are a great resource to add to your audits and inspections. IR cameras are an allowable expense and thermography training is an allowed T&TA expense.

Q. What zonal pressure (ZP) will guide air sealing?

A. A general rule when running the blower door is to achieve a ZP as close to 50 as possible. While a ZP doesn't give an exact number of CFM connection (this is a qualitative, not quantitative, test), it gives you an initial number that shows the proportionate connection from the zone to home and the zone to outside. If you feel the attic needs specific diagnostics, you can complete a modifiable ZP test. You can use the free tool at RED Calc Zone Pressure Diagnostics | Building America Solution Center. This allows you to complete a ZP test with the hole to zone approach.

Q. What is H&S air sealing?

A. H&S air sealing is sealing areas between conditioned and unconditioned spaces for H&S purposes such as radon, moisture, CO, and IAQ. Ask the questions: Why am I doing this? What am I trying to
achieve? Is this allowable? Then properly document justification for H&S air sealing efforts under H&S tab in WA. This can also be used when there is no SIR for air sealing. Refer to AMC 1-14 – Seal bypasses in a tight house.

Q. Do I need to air seal open block tops?

A. Yes. This can be done as an ECM or HSM. This is done for building integrity to prevent air and moisture intrusion. SWS 3.0104.1h: "Apply a continuous seal at all seams, cracks, joints, penetrations, and connections of foundations walls, sill, floors, etc. that are adjacent to unconditioned spaces…" This can also be done as an HSM for a pre-cautionary measure for radon.

Q. Do I need to air seal all cracks in foundations and floors?

A. Yes. This is done as an HSM as a precautionary measure (NOT MITIGATION) for radon. Since we do not test for radon and do not mitigate for radon, we take precautionary steps to help protect the household.

Q. Can I dense pack for air sealing purposes?

A. Yes, including dense packing interior soffits (not limited to kitchens).

Q. Can I air seal unused fireplaces?

A. Yes, existing fireplace damper or "airtight" doors seldom provide a good air seal. Help the customer decide whether the fireplace will be used in the future or whether it can be taken out of service. Consider these solutions for chimneys with ineffective or missing dampers.
   a) Install an inflatable chimney seal along with a notice of its installation to alert anyone wanting to start a fire to remove the seal first.
   b) Air seal the chimney top from the roof with a watertight, airtight seal. Also seal the chimney from the living space with foam board and drywall. If you install a permanent chimney seal such as this, post a notice at the fireplace saying that it is permanently disabled.

Q. How do I pay for diagnostics if I do not have much in air sealing? What do I pay for with the SIR dollars?

A. All BPI 1200 testing for H&S purposes can be costed to an HSM. If completing blower door guided air sealing, this diagnostic cost can first be applied to the SIR measure. If you are completing air sealing for H&S, then it can be costed as an HSM. Diagnostics should follow the parent category.

Q. What products do I need to use in habitual space?

A. Fire rated approved products. This includes 1 part foam.

Q. What about radon?

A. Per the Confirmation of Receipt of A Citizen's Guide to Radon Pamphlet: Since all counties in MN are considered to have moderate-to high-potential radon levels by the EPA, precautionary measures indicated below will be installed as part of weatherization:

a) Exposed dirt floors covered and sealed
b) Floor/foundation penetrations sealed
c) Open sump pit capped
d) Implement ventilation as required by ASHRAE 62.2 2016
e) Other measures as defined by SP

Per MN State Plan 6.15 Radon: Clients must sign an informed consent form prior to receiving weatherization services. This form must be kept in the client file. In homes where radon may be present, work scope must include precautionary measures based on EPA Healthy Indoor Environment Protocols for Home Energy Upgrades, to reduce the possibility of making radon issues worse where feasible. Whenever site conditions permit, cover exposed dirt floors within the pressure/thermal boundary with 6 mil (or greater) polyethylene sheeting, lapped at least 12" and sealed with appropriate sealant at all seams, walls, and penetrations. Other precautions may include, but are not limited to, sealing any observed floor and/or foundation penetrations, including open sump pits, isolating the basement from the conditioned space, and ensuring crawl space venting is in place or installed. Radon assessments are not part of weatherization in Minnesota. Dwellings with previously identified radon problems should not be left with an increased negative pressure in the contaminated area after weatherization work. Vapor barriers are installed in dwellings with accessible crawlspaces where there is exposed soil.

MN does not test nor install radon mitigation systems. We take the approach of assuming levels are higher and take the pre-cautionary approach to reduce the risk of increasing the levels of radon due to aggressive air sealing by installing measures as an HSM in conjunction with ASHRAE ventilation. Properly assess the home to align with this approach and document in the H&S tab the extent of what work will be done.

Q. Do I need to air seal every pump cover and how do I seal it?

A. Any sump that is connected to the ground must be sealed. If a sump is directly connected to the ground such as a hole in the floor of the slab or dirt floor, or if drain tile is connected to the sump, the opening shall be covered with a cover and sealed (SWS 2.0401.2) when applicable (WPN 22-7).

When sumps are installed to allow for bulk moisture to drain, a one-way ball valve fitting should be installed if there is enough room. Sump covers are required when applicable to help reduce the possibility of radon from entering the home. Covers shall be sealed with silicone caulk or other material that will allow for an airtight seal, along with any penetrations through the cover. If there is a pump present, it shall be turned off and unplugged prior to any work commencing.

Sump pumps come in two styles, submersible or pedestal pumps. Submersible pumps sit totally submerged in the sump crock. Pedestal pumps have the pump motor extended above the sump crock. In principle, both types of sump pumps operate the same. As the water rises in the sump

crock, a float attached to the pump rises until it triggers the pump to turn on and pump water out of the crock. Submersible pumps can have floats that are free floating or that ride up and down on a shaft. The float on a pedestal pump rides on a rigid shaft that extends above the plane of the sump crock.

Sump covers for submersible pumps

- For flat covers, sump pit cover materials must be rigid and made of polycarbonate plastic or other rot resistant material such as pressure treated plywood.
- The covers shall be secured with silicone caulk. If gasketing material is used mechanical fasteners are required so that the cover can be removed.
- All sump cover penetrations shall be sealed.

Pedestal pump Sump covers

There is no way to take the pump apart so holes can be drilled in the cover for the pedestal and rigid tubing that the float is attached to. The tubing cannot be sealed since it moves when the float moves. The only options for sealing a sump with a pedestal pump are to:

- Replace the pedestal pump with a submersible pump and then seal the sump.
- Install a commercially made cover for the pedestal pump.

If the sump is used as a floor drain, or if a floor drain is connected directly to the ground under a slab and not to any waste plumbing, installing a one-way drain may help reduce the possibility of radon entering the home.

- Determine if the floor drain is connected to the ground under the slab or to waste plumbing.
- If the drain is connected to the ground, follow the manufacturer's instructions for installing the appropriate one-way drain. Examples below:

Dranjer® one-way drain (FR2) Dranjer® one-way drain (FS2)

Photos courtesy of Dick Kornbluth, LLC

Policy: The use of Priority List Audit Events as defined by the United States Department of Energy (US DOE) in WPN 22-8 are an initiative of the Minnesota Weatherization Assistance Program (MN WAP) intended to streamline the energy audit process to allow Minnesota Weatherization Service Providers to provide weatherization services more broadly to income-eligible Minnesota households.

General Guidance

- All aspects of the MN WAP Policy Manual and its appendices apply to Priority List Audit

Events, including but not limited to health and safety measures, procurement, and contracting if not otherwise stated in this document.

- The criteria and requirements for Priority List Audit Events will follow the appropriate checklists by housing type. This will be done by following and completing the most up to date (WAP Memo 114) Form A Checklist – Region 3, Form C – Combustion Safety, and Form H – Health and Safety located in WAPLink.
- The primary difference between Priority List Audit Events and Site-Specific Audit Events is the cost justification and selection of Energy Conservation Measures. Policy and Procedures in this document will include differences in data collection, file contents, measure selection, documentation requirements, and monitoring requirements.
- With respect to climate zones defined in WPN 22-8, all areas of Minnesota are Region 3 - Cold.
- All applicable Health and Safety Measures included in the Minnesota US DOE State Plan must be completed for Priority List Audit Events.
- The average cost per unit (ACPU) applies to Priority List Audit Events as defined in the MN WAP Policy Manual.
- Any measure listed as "mandatory" in WPN 22-8 may only be skipped if it is physically impossible to install, regardless of funding source used for the measure. SP is to properly document and inactive the measure in WAPLink.
    - A measure is considered physically impossible to install if it cannot be implemented within the existing physical, structural, or mechanical constraints of the building without major reconstruction, code violation, or safety compromise.
- If a dwelling meets the criteria found in WPN 22-8 for Priority List Audit Event Weatherization, the dwelling may be weatherized using the Priority List approach. If the energy auditor determines that the dwelling unit needs any measure not included on the relevant Priority List or if the home does not meet the basic requirements listed in WPN 22-8, then a site-specific energy audit must be run in compliance with the Minnesota's US DOE-approved energy audit procedures.
- Travel measures must be charged as an IRM and subject to the $500 cap for Site Built and Manufactured Homes and the 10% cap of ECMs for Low Rise Multifamily projects.
- Additional measures paid for with other funding sources, including EAPWX Measure Expansion and utility program measures can be installed in tandem with Priority List Audit Events.

Priority List Audit Events may only be completed for those eligible dwellings that meet the following criteria (as defined by WPN 22-8).

1. Site Built Dwellings: Wood-framed single-family site-built dwelling unit that meets the following checklist:
    a. Three (3) stories or less above grade.
    b. Primary heating system is not:
        i. a sealed-combustion natural gas furnace with an original AFUE rating of 90% or greater.
        ii. a heat pump manufactured after 2006.
    c. Job will not exceed $500 in incidental repairs meeting the definition outlined in

the MNWAP Policy 4.2.2.
2. Manufactured Homes: Single-wide or double-wide manufactured homes that meet the following checklist:
    a. Manufactured before 2010.
    b. Has an accessible unconditioned subspace.
    c. Does not have an attached conditioned addition.
    d. Primary heating system is not a natural gas furnace with an original AFUE rating of 80% or greater.
    e. Job will not exceed $500 in incidental repairs meeting the definition outlined in MN WAP Policy 4.2.2.
3. Low-Rise Multifamily: Wood-framed Low-Rise Multifamily structures that meet the following checklist:
    a. Three (3) stories or less above grade.
    b. Contains five or more units per building.
    c. Incidental Repair Measure (IRM) costs, as defined in MN WAP Policy 4.2.2, funded with US DOE WAP funds will not exceed 10% of the project's total Energy Conservation Measures (ECM).

Special Multifamily Requirements Related to Common Spaces: Only items labeled as "Mandatory" may be installed in common spaces regardless of who pays the utility costs for these spaces. Common areas not physically connected to the qualified building, even if existing only for the use of the tenants of the qualified building, may not receive services paid for with WAP funding. "Optional" measures may not be installed using US DOE WAP funds in common spaces and may only be installed in dwelling units if all other applicable mandatory measures are installed as well.

Policy Guidance Additions to the MN WAP Policy Manual

Section 1: Program Management

1.3.1 Unit Averages: The Average Cost Per Unit (ACPU) for units completed using a Priority List Audit Event is the same as that for Audit Events.

1.3.2 Production Planning: Service Providers should incorporate anticipated US DOE ACPU for Priority List Audit Events into planned US DOE units based on cost of priority list measures relative to site specific audit events.

Section 2: Eligibility and Service Requirements

2.2 Priority for Providing Weatherization Services: Whether a dwelling can be weatherized as a Priority List Audit Event has no bearing on the prioritization of weatherization services. MN WAP Policy 2.2 must be implemented as written in the MN WAP Policy Manual. The ability to weatherize a home as a Priority List Audit Event is not a priority category as defined under MN WAP Policy 2.2.

Section 3: Dwelling Eligibility

3.3.2 Multifamily Rental Requirements: The ability to use a Priority List Audit Event in a multifamily project will depend on whether the dwelling or dwelling units meet the criteria outlined above for either a Site Built or Low-Rise Multifamily building. In most cases rented townhomes with complete

separation between the building units' thermal barriers, air pressure boundaries, mechanical systems, and with individually metered units may be weatherized according to the Site Built Priority List.

3.8 Deferrals: The inability to weatherize a home using a Priority List Audit Event cannot be used as a justification for deferring a dwelling. Dwellings that cannot be weatherized using a Priority List Audit Event must be evaluated for a Site-Specific Audit Event.

Section 4: Audit Event

4.1 Definition:

POLICY: MN WAP uses priority lists as defined in WPN 22-8 to generate energy conservation measures for Priority List Audit Events.

4.2.1 Energy Conservation Measure: ECMs are to be evaluated based on the definitions and procedures found in WPN 22-8 for Priority List Audit Events.

4.2.2 Incidental Repair Measures: Incidental repair measures are limited to $500 for site built and manufactured homes and to 10% of the projects total Energy Conservation Measures for multifamily dwellings for Priority List Audit Events.

4.2.3 Health & Safety Measures: Health and Safety Measures must be installed as they would be for site specific homes for Priority List Audit Events.

4.2.4: General Heat Waste Measure (GHW): General Heat Waste Measures are allowed and are to be implemented per WPN 22-8, which is different than for Site-Built Audit Event checklists as defined in MN WAP Policy 4.2.3.4.

4.3 Household File Content: Unless otherwise noted in this document household file contents are the same for Priority List Audit Events as for Site Specific Audit Events including all required forms and eligibility documentation.

4.3.5 WAPLink Data:

- WAPLink engine form data entry is not required.
- All relevant data inputs needed to accurately assess the house per the criteria found the WPN 22-8 Priority Lists and the priority list data collection forms.

4.4 Energy Audit: Where not specifically noted in this document Energy Audit Procedures are the same for Priority List Audit Events as for Site Specific Audit Events.

4.4.1.4 Weatherization Assistant (WA) Data Entry: The Audit form in WA is not required to be completed for Priority List Audit Events. Priority List checklists are required to be completed in the comment section of the Audit Information tab in WA. An Audit form may be utilized to generate heat load calculations if needed.

4.4.2 Measure Consideration: Unless otherwise noted in this document, measure specific requirements are the same for Priority List Audit Events as for Site Specific Audit Events.

- Air Leakage Reduction: All single family and manufactured home dwellings weatherized as

Priority List Audit Events have a minimum target of one CFM per finished square foot. However, this is a minimum and should not be a limiting factor as aggressive and achievable air sealing should still be pursued in all homes. Blower door testing is still optional for Low-Rise Multifamily Priority List Audit Events. Review Mandatory Air Sealing on Form A – Region 3 for all dwellings.

- Wall Insulation: Minnesota Weatherization Service Providers can choose whether to pay for wall insulation as gross wall square footage or as net wall square footage if it matches their existing procurement method. Service Providers paying contractors for net wall square footage must calculate net wall square footage of any walls to be insulated to accurately price wall insulation.

4.4.3 Work Orders:

- Priority list audit event work orders are generated automatically by WAPLink.

- Differences for Priority List Audit Events
  o Audit Events will be downloaded from FACSPro and when Priority List is selected, the file will include dwelling and client information, required checklists, and a work order with preset measures that can be edited to create multiple work orders as needed if there are multiple vendors.
  o WA Measure Types as Priority List – Priority List Mandatory (PLM) and Priority List Optional (PLO)
  o WAPLink reports will be adapted to track and differentiate between Priority List Audit Events and Site-Specific Audit Events.
  o Measures installed in the dwelling that use any portion of US DOE WAP funding must meet US DOE WAP rules. When applying the Priority List, any measure that is included in the dwelling that is ranked higher than the last measure with US DOE funds, the measure must meet the minimum installation requirements outlined in the appropriate priority list.

4.6 Quality Control Inspection: Where not specifically noted in this document the Quality Control Inspection (QCI) procedures are the same for Priority List Audit Events as for Site Specific Audit Events. The QCI procedure must include an assessment of whether the use of PL was appropriate.

Checklists

Below are the checklists to be filled out in their entirety.

Dwelling Eligibility for Priority List Checklists
Single Family: Attachment 1: DOE-Sponsored Priority List for Single-Family Site-Built Homes

Manufactured Home: Attachment 2: DOE-Sponsored Priority List for Manufactured Homes

Low-Rise Multifamily: Attachment 3: DOE-Sponsored Priority List for Low-Rise Multifamily Projects

Audit Checklists
Single Family: Form A – Single Family Site-Built Priority List Checklist - Region 3

Manufactured Home: Form A – Manufactured Home Priority List Checklist - Region 3

Low-Rise Multifamily: Form A – Low-Rise Multifamily Priority List Checklist - Region

Form C Checklist – Combustion Safety

Single Family: Form C – Single Family Site-Built Combustion Safety Checklist

Manufactured Home: Form C – Manufactured Home Combustion Safety Checklist

Low-Rise Multifamily: Form C – LRMF Combustion Safety Checklist

Form H Checklist – Health and Safety

Single Family: Form H – Single Family Site-Built Home Health & Safety Checklist

Manufactured Home: Form H – Manufactured Home Health & Safety Checklist

Low-Rise Multifamily: Form H – LRMF Dwelling Unit Health & Safety Checklist

Work Orders

Once the SP has completed the checklists in WAPLink, they will move to the work order.

Work orders are automatically populated with the download. Measures can be copied to a new work order so it can be created if there are multiple trades and vendors associated with the job. The SP is required to go through all measures and properly document any details around the measure, appropriate quantities and/or measurements, and estimated costs (whether set price or bid). If a measure is not completed because it physically cannot be done or is optional, the SP is to properly document, with notes and photos, and zero out the measure in WAPLink.

All statuses are required per MN WAP policy and all work is required to be completed as usual in accordance with SWS and other applicable codes and requirements.

Weatherization Innovation through Roofing and Electrification (WIRE) Access Project

POLICY: In compliance with WPN 24-8, the US DOE Enhancement and Innovation (E&I) Grant Weatherization Innovation, Through Roofing and Electrification (WIRE) Access Project will provide equitable access to roof and electrical-system upgrades, both necessary precursors to delivering deep energy retrofits through solar energy and electrification, in dwellings that would otherwise be deferred. The goal cost per unit for the WIRE Access Project is $20,000.

Dwelling Eligibility:
- Weatherization projects that will be "weatherization ready" after WIRE Access Project repairs are made and will result in a US DOE completion, may receive WIRE Access Project funds.
- Reweatherization: Work performed in homes using E&I awarded funds is not subject to the 15-year "reweatherization" requirement outlined in Section 1011(h) of the Energy Act of 2020. Dwelling units previously weatherized by WAP, U.S. Department of Health and Human Services (HHS) Low-Income Home Energy Assistance Program (LIHEAP), U.S.

Department of Housing and Urban Development (HUD), or U.S. Department of Agriculture (USDA) are eligible for E&I-related activities.
- Service Providers must analyze all potential reasons for deferral within a home prior to utilizing WIRE Access Project funds.
- Service providers must work with Commerce Staff for client selection. Contact your WIRE Access Project Administrator at Commerce before beginning any project.

Prioritization:

Service Providers will use the following factors to determine which dwellings receive WIRE Access Project funds:

- To receive WIRE Access Project measures, a client must be WAP eligible and be a past or present deferral due to a roof or electrical issue with priority given to clients in historically redlined neighborhoods and tribal lands.

Allowable Repairs:

- Roofing installs
  - Roof replacement including, replacing decking material and roof, and/or changing roof material (e.g., shingles to metal)
  - Roofing repairs
- Electrical installs
  - Knob and tube replacement
  - Panel upgrade
  - Other electrical upgrades that will make the dwelling solar and electrification ready

Repairs not listed here will be considered on a case-by-case basis and must receive prior Commerce approval.

Documentation:

Documentation of WIRE Access Projects are to follow MN WAP Policy Manual, Section 4.3 Household File Contents. Audit field notes and pictures justifying the need for roofing and electrical upgrades are required and must be included in the client file.

Monitoring:

Monitors will verify that the WIRE Access funds were spent on a home that resulted in weatherization, that the statewide WIRE Access Project average was maintained, and that priority was given to client in historically redlined districts and tribal lands. Monitors will review the quality of the work performed using WIRE Access Project funds to determine that it is completed in a professional manner.

Procedure:

1. Conduct a full audit to determine if a deferral can be avoided by installing roofing or electrical upgrades.
2. Verify that no other issues will result in a deferral following MN WAP policy manual Section 3.8. WIRE Access Projects funds may only be used on a dwelling that results in a fully weatherized unit.

3. Review the household with Commerce to determine eligibility. Add Commerce's written approval to the household file.
4. When your WIRE project is approved, Commerce will revise your Notice of Funds Available (NFA) for the cost of the project period. Work cannot proceed until the funds appear on the new NFA and are viewed by the Service Provider in WAPLink.
5. Solicit bids from eligible roofing and electrical contractors following current MN WAP Policy Manual Section 7. Select the lowest bid that best meets the job specifications.
6. Create a work order in WAPLink as part of the audit event.
    i. Work Order Type: Audit Event
    ii. Measure Type: Other
    iii. Measure Name(s): Whatever is applicable (e.g., Roof Replacement, Panel Upgrade)
    iv. Cost Center: EI WIRE
7. Release Work Orders.
8. Conduct roofing or electrical upgrades.
9. Verify that the work scope has been completed, and no deferral conditions remain.
10. Review applicable documentation and confirm that all required documentation is present.
11. BPI HEP Quality Control Inspector (QCI) certification must determine if the work scope has been completed, and relevant documents are in order and accounted for before each project is paid.
12. Approve funding and make payment to the contractor.
13. Proceed to full weatherization.

Crossing Program Years

1. If a WIRE project must be carried over into the next program year, follow MN WAP Section 1.3.3.b and notify Commerce. This practice is not recommended, and Service Providers are reminded of the risk in carrying jobs into the next program year, as payment is contingent on a fully executed contract and NFA.
2. Weatherization associated with a WIRE project may be initiated in the program year following implementation of the WIRE Project. In this case, follow the procedure stated above.

Section 6: Fiscal Management

Fund/Grant Entry

NFAs

When a new NFA is available, you will see an exclamation point next to NFA on the left navigation pane. The WX Manager will also receive a Task alert.

To view your NFA:

3. Go to My Agency
4. Click on Financial Management
5. Click on NFAs
6. Enter the Program Year from the drop down
7. Click on the version number of the NFA you wish to view
8. Click NFA Report
9. Click Submit Report Request (you may also schedule it to print later or check the email upon completion box to have it send you an email version).
10. Click My Reports (left hand navigation pane)
11. Click the line item you wish to view
12. Click View
13. To see the HISTORY of what has occurred on the various NFA versions, click the NFA version, then select the History Icon.

Budget Questions

1. Go to My Agency
2. Click on Financial Management
3. Click on Budget Questions
4. Choose the Program Year
5. Choose the Funding Source
6. Click on the question you wish to answer
7. Enter your response in the Answer box
   a. Note: The options to copy last year's answers, found at the top of the page, is available for each question.

8. Press Enter to Save and move to the next line item
9. Click the Submit button to submit the budget questions to Commerce

Budget planning questions must be answered prior to submitting the corresponding budget.

Budgets

1. Go to My Agency
2. Click on Financial Management
3. Click on Budgets

View the Budget

1. Either double click the line item or enter the Funding Source
2. To view the activity for this budget, click History

Submit the Budget

1. Either double click the line item or enter the Funding Source
2. Click the line item you wish to update
3. Enter the amount of allocation, for each line item, in the Standard Amount box
    a. The Currently Allocated amount will sum the amounts as they are entered, for each category. Admin and T&TA will auto fill with the allocated amount.
4. Click Save
    a. If the box remains red, the total amount for that category does not match the Allocation Limit and must be adjusted.
5. When complete, click Submit Budget.
6. You may include a note with the budget. To add a new note, click Notes, add your notes to the New Note area, click Save. To alert Commerce of the presence of the note, click Mark for Review.
7. You can review, print, or save the budget planning Q & A.
    a. Click Budget Questions Report
    b. Go to My Reports in the left-hand navigation
    c. Click on the report you created.

Commerce will be alerted when there is a budget to review and approve. Once approved, the person/people set up in Email Setup will receive an alert.

FSRs

View FSR

10. Click My Agency
11. Click Financial Management
12. Choose FSRs
13. Click the Funding Source line item
14. Click FSR Report
15. Click Submit Report Request
16. To view the FSR report, click Document Center on left hand navigation

Enter FSR

1. Click My Agency
2. Click Financial Management
3. Choose FSRs
4. Click New
5. Choose Program Year

6. Choose Funding Source
7. Choose FSR Month/Year
8. If final FSR of the PY, check the Final FSR box
9. Click Save
10. Click Yes to load the new FSR
11. Enter current expenditures
12. Press Enter to save and move to the next line item.
13. When complete, click Submit
14. Click Yes

Cash Requests

View Cash Requests

15. Click My Agency
16. Click Financial Management
17. Choose Cash Requests
18. Choose Program Year
19. Choose Status
20. Click the CR# line item you wish to view

Cash Request Entry

1. Click My Agency
2. Click Financial Management
3. Choose Cash Requests
4. Choose Program Year
5. Click New
6. Enter the Period Start and Period End dates
7. Click Save
8. Choose the Funding Source from the upper right corner of the grid
9. Enter the amounts for each category in the lower left corner of the grid
10. Click Save
11. Repeat 8 – 10 for each fund
12. When complete, click Submit

Fiscal Documents

This section is used to add and store fiscal documents.

1. Click My Agency
2. Click Financial Management
3. Choose Fiscal Documents
4. Click New
5. Click Upload File
6. Choose the file you wish to upload
7. Click Open

8. Choose a Document Type from the dropdown (optional)
9. Click Save
10. Click the View Document button to view the document

Section 7: Procurement

Vendor Management

General

1. Log in to WAPLink using your Username and Password
2. Click *My Agency Setup*
3. Click *Vendors*

Activate an Existing Vendor

1. Look for an existing vendor with a matching Federal Tax ID. Sort by clicking either the Vendor column (alphabetical) or Fed. Tax ID column (numerical). If a vendor, with a matching Tax ID, is on the list, you may activate them.
2. Click on the name of the vendor you want to activate
   a. If there is a check mark in the *Activated* column, they are already active for your agency
   b. Click the *Activate Vendor* button
   c. You will get a pop-up stating: "Are you sure you want to Activate this Vendor?"
   d. Click "Yes"
   e. There will be a check mark in the *Activated* column indicating they are now active for your agency

Enter a New Vendor

If the vendor is not on the list, add a new Contractor, Crew, Utility or Inventory
1. Click New
2. Fill in the Vendor name
3. Enter the *Fed. Tax ID* (must be 9 digits)
4. Select *Contractor, Crew, Utility or Inventory*
5. Select Vendor type: *Building Shell/Other or Mechanical*
   a. If Mechanical, you must select the sub type Check all that apply
      i. Electrical (includes Solar Contractors)
      ii. Plumbing; and/or
      iii. HVAC
   b. If the vendor is not a Contractor or Crew, do not choose a type or sub-category
6. Minority, Woman or Veteran Owned: Select Yes or No from the dropdown
7. Click Save

- Note: After entering the vendor's name and Tax ID, and clicking save, WAPLink checks for an existing vendor with the same Tax ID. If the Vendor is found in the statewide system, a notice alerting you that the vendor you are trying to create already exists. After clicking Save, a pop-up will state "A Vendor has been found with this Federal Tax ID. Do you want to Activate that Vendor for your SP?" Click Yes

8. Highlight the vendor
9. Click the Services Provided Button; Choose all that apply
10. Add a Price Book by clicking New and enter relevant data (optional)
11. Click *Save*
12. Click the Locations button
13. Click New
14. Add Location (i.e. Main Office, city where located)
15. Enter the Address
16. Click Save
17. Click Activate Location (will automatically activate the vendor if adding via New)
18. Add Contacts (bottom half of the page)
19. Click New
20. Enter the First Name, Last Name, email and choose the Contact Type (required)
21. Enter the phone and fax (optional)
22. Click Save
23. You may repeat steps s – x to add additional locations or contacts
24. You will now see a check mark in the *Activated* column
25. Add Vendor and Employee documentation (see sections below)

Delete a Vendor

A vendor can be deleted and will not affect other service providers using that vendor. A check to verify this will occur and if other service providers are using that vendor, will deactivate for only your agency.

1. Click on the vendor's name
2. Click Delete
3. Answer yes to "Are you sure you wish to delete this record?"

Optional Features (Main Vendor Entry Screen)

Place on Probation
1. You may want to place a vendor on probation, rather than deactivate them
   a. Click *Deactivate Vendor*
   b. Popup will ask "Are you sure you want to place this vendor on Probation?"
   c. Click Yes
   d. You will now see a check mark in the Probation column on the grid
   e. You will not be able to assign this vendor jobs.

Note: This function is only visible to and effects the SP putting them on probation.

Internal Notes

1. Notes are SP specific and can only be viewed by the SP entering the note.
2. Notes regarding a vendors likes/dislikes, issues to watch, or general information, can be entered here. These can be viewed by other Service Providers
3. To view or add a note, click on *Internal Notes* at the top of the page. Compose the note and click *Save*
4. Notes can only be edited or deleted by Commerce

Don't Share

When *Don't Share* is checked, the vendor will not be visible, in the grid, to other Service Providers. Other Service Providers will only see them when they begin to enter a vendor with the same Tax ID

Vendor Chat (currently not in use)

Vendor Chat is used to communicate with a vendor via email. This feature can only be used with activated vendors.

1. Click Vendor Chat
2. Type your message
3. Click the arrow to send.
4. Reply notifications will be shown in the WAPLink – Vendor Chat window.
   The Vendor Name on the main screen will be highlighted to indicate an unread chat is available.

Login Settings (currently not in use)

Login Settings are used to provide vendors access to view and update their profile and upload documents.

1. Click on the Vendor name (vendor must be active)
2. Click on Login Settings
3. Click Add User (answer Yes to the popup question).
4. Enter the Admin users email address.
5. Click Save.
6. An Admin Username will be automatically assigned.
7. Click Password Reset (answer yes to force this user to reset their password when they next log in
8. Check Allow Vendor Login for WAPLink
9. No other boxes will be checked at this time

Documentation Entry Tab

Overview
1. Documents unique to each Service Provider include the Contract between SP and Vendor, Insurance, and Workers Compensation. All other documents are shared, and each document must be *Approved* by each SP.
2. Based on the type of vendor you choose, only the relevant documents will populate.

Required Field Alerts
1. If a vendor status is Doc incomplete or Ineligible, there are issues with one or more document
2. Click the View Issues tab at the top of the page. This provides a list of issues identified and that need to be resolved to make the vendor eligible

Expired/Expiring Vendor Alerts
1. If you have an expiring vendor, an alert will be sent. To receive an alert, a user must have the *Receive Vendor Alerts* checkbox marked in *WAPLink People.*
2. Alerts are built in and will flag when a document is soon to expire or is expired. An alert will be sent when a vendor goes from Eligible Vendor to Expiring Vendor or from Eligible Vendor/Expiring Vendor to Ineligible Vendor. When the Vendor goes from Ineligible Vendor/Expiring Vendor to Eligible Vendor, it will mark any existing alerts for that vendor as completed.
   a. *Yellow highlight* indicates document it is soon to expire. Soon to expire alerts are set by Commerce and vary by document (see the Expire Alert Quick Reference Table for individual document alert timeframes).
   b. *Red highlight* indicates document is expired. This makes the vendor ineligible; you will not be able to use this vendor until documentation is updated.
3. Expired documents are archived and visible only when *Show Archived*, at the top of the page, is checked.
4. Expiring dates and documents will run concurrently with new documents until expiration, at which time the expired document will be archived.

Document Entry
1. Click on the vendor's name
2. Click on the *Documentation tab*
3. Click on the document name
4. Enter the *Start and End Dates* or check the *Not Needed* box
5. Start dates must be either in the past or today's date
6. End dates must be in the future
7. The following documents give you the option of a check box indicating it is not needed or not applicable. Notes explaining the reason for checking the box are required for some items

a. *Workers Compensation Insurance* when not applicable (requires a note)
b. *EPA Lead Firm* Certification when not applicable (For mechanical contractors or vendors not doing any lead-related work.) (Adding a note is optional)
c. *Asbestos Contractor and Firm Certification* when not applicable (Adding a note is optional)
8. Click *Save* after each entry

Notes Folder (Documentation Tab)
1. *Notes* entered from the *Documentation* tab are related to a specific document
2. Notes are specific to the selected item in the grid and aren't used in determining the vendor's status or any colors in the grid
3. You must first click on the document and then click on the *Notes* folder to add a note
4. Notes can only be edited or deleted by Commerce
5. Only the Service Provider entering the information, and Commerce, can view it

Attach a Document
1. Attachments are required for each entry except when the Not Needed box is checked
   a. Save the documents in a location that is easily accessible such as on your desktop or an easily accessible folder on your computer
2. Highlight the document name
3. Click *Attach*
4. When you click *Attach*, a file browser window will pop up
5. Navigate to the location of the file you would like to upload
6. Highlight the appropriate file and click *Open*
7. *Click Save*
8. A checkmark will populate in the *Attached* column indicating the attachment is present

View an Attachment
1. Click on the line of the document you wish to view
2. There must be a check mark in the *Attached* column indicating an attachment is present
3. Click View

Delete a Document
1. Click on the line you wish to delete
2. Click *Remove*
3. A pop-up stating, "A*re you sure you want to Remove this Document*?"
4. Click "Yes"

Add a New Document when Previous Document is Expired/Expiring
1. Click on the document you wish to add or update
2. Click *Create New Document*

        a. A duplicate document is created
3. Note that the *Create a New Document* option will only be available when Not Needed was previously checked. Otherwise, the system will add the new document automatically once it is shown as expiring (when you see the yellow).
4. Click on the duplicate line item
5. Enter the required information
6. Click Save
7. Upload the attachment

Document Specific Information

Contract between SP and Contractor (Includes SWS Verification)

1. Enter the start and end date of the contract
2. Upload the contract and SWS Verification if separate
3. Will not be present for a Crew
4. Click Approve

Contractor License/Bond

1. Enter start and end date of the firm license or bond
2. Shell: Upload the license (assumes bond)
3. Mechanical/HVAC: Upload the Bond
4. Electrical or Plumbing: Upload the license (at least one of the employees must have an individual license for this to be an eligible vendor)
5. Click Approve

Insurance Certificate (Property damage, bodily injury, liability)

1. Enter the start and end date of the liability insurance
2. Upload the insurance document
3. Click Approve

Workers Compensation

1. When the vendor has employees, the Insurance Certificate must include evidence of Workers Compensation coverage or separate documentation must be uploaded
2. If the Workers Compensation information is not included in the *Insurance Certificate*:
        a. Enter the *Workers Compensation Insurance* start and end date
        b. Upload the *Workers Compensation Insurance* document
3. If Workers Compensation information is included on the Insurance *Certificate*:
        a. Check the *Not Needed* box
        b. Add a note in the *Not Needed Reason* box noting the reason it's not needed
        c. Attachment is not required when the *Not Needed* box is checked
4. Click approve

Debarment Check

1. Debarment verification must be completed annually. These expire, in WAPLink, one year from the completion dates
2. Enter the date conducted
3. Upload the document
4. Will not be present for a Crew
5. Click approve

EPA Lead Firm Certification

1. *EPA Lead Firm Certification* is required for all building shell contractors
2. Enter the start and end date
3. Upload the *EPA Lead Firm Certification* document
4. If the Mechanical Contractor or vendor does not perform any work requiring lead-safe practices and certification is not required, check the *Not Needed* box and document the reason it's not required in the *Notes* (recommended)
5. EPA Certification Information can be found at http://cfpub.epa.gov/flpp/ searchrrp_firm.htm
6. Click approve

Asbestos Contractor and Firm Certification

1. Required only when the contractor does asbestos work
2. Enter start and end date
3. Attach the *Asbestos Contractor and Firm Certification* document
4. If the contractor or vendor does not perform asbestos work, check the *Not Needed* box
5. Add a note in the *Notes* box (recommended)
6. Will not be present for a Crew
7. Click approve

Employee Entry Tab

Employee Entry Overview

1. Everyone entering a client's home, including a working owner or sole proprietor, must be listed in the *Employees* tab.
2. Employees and associated documents are shared between Service Providers. Each Service Provider must approve each document.
3. All the required documentation for Asbestos and Lead must be complete in the *Vendor Documentation* tab (dates and attachment), for the associated employee documentation to flag as required.
4. Click Approve after each document entry

Required Field Alerts

1. *Red highlight* indicates the field is required (date and/or attachment) and must be completed for a vendor to be eligible
2. *Grey highlight* indicates the information is not required

Expiration Alerts
1. *Expires* date automatically calculates based on the date(s) entered
2. Documents that only require a date conducted, will only show the date in the *Start Date* column
3. *Yellow highlight* indicates it is soon to expire
4. *Red highlight* indicates it is expired or missing

Add Employees
1. Click on the Employee Documentation tab
2. Click New
3. Enter the First Name and Last Name (required)
4. Enter the Phone and Email (recommended)
5. Click Save
6. Add additional employees by repeating these steps

Employee Documentation Entry
1. Click on the employee's name
2. Click on the line with the name of the document
3. Enter the *Start and End Dates*
   a. Start dates must be either in the past or today's date
   b. End dates must be in the future
4. Click *Save* after each entry

Attach/Upload a Document
1. Click on the employee's name
2. Highlight the document name
3. Click *Attach*
4. When you click *Attach*, a file browser window will pop up
5. Navigate to the location of the file you would like to upload
6. Highlight the appropriate file and click *Open*
7. Attachments must be in the form of a PDF or JPEG
8. Click Save
9. A checkmark will populate in the Attached column indicating the attachment is present

View an Attachment
1. Click on the line of the document you wish to view
   a. There must be a checkmark in the *Attached* column indicating an attachment is present
2. Click View

Delete a Document
1. Click on the line you wish to delete
2. If approved, click *Unapprove*
3. Click *Remove*

4. A pop-up stating, "Are you sure you want to Remove the Document?"
5. Click *Yes*

Add a New Document when Previous Document is Expired/Expiring
1. Click on the document you wish to add or update
2. Click *Create New Document*
    a. A duplicate document is created above the current document
3. Click on the document you wish to update
    a. Enter the *Start and End Dates*
    b. Click Save
4. Upload the attachment
5. Note that the *Create a New Document* option will only be available when all required fields and uploads are complete for the existing document

Employee Document Specific Information

Employee Criminal Background Check (optional)
1. Enter the date the *Background Check* was conducted
2. No document attachment is required
3. Click Approve

EPA Lead Certified Renovator
1. For each Certified Lead Firm, at least one employee must have an *EPA Lead Renovator Certification* for the vendor to be eligible
2. Enter the start and end date
3. Attach the *EPA Lead Renovator Certification* document
4. Click approve

Lead-Safe Work Training
1. All employees must have either lead-safe work training or have *EPA Lead Renovator Certification*. When *Lead Renovator Certification* is entered, lead-safe work training will not show, on the grid as an option, as it is included in the certification
2. Enter the *Lead-Safe Work Training* start and end date and attach documentation of training. This training may have been conducted internally by the Contractor; in this case, the contractor should provide documentation attesting to this training including an outline of topics addressed and date of training
3. Document will show on the grid, but not be required, when *EPA Lead firm certification is entered for the Contractor on the main Documentation tab.*
4. Click Approve

Asbestos Certification
1. *Asbestos* Certification is required for all employees of a vendor who performs asbestos work

2. Document will show on the grid, but not be required, when *Asbestos Contractor and Firm Certification* information is entered for the Contractor in the main *Documentation tab*
3. Enter the *Asbestos Certification* date(s) and attach documentation
4. Will not be present for a Crew employee
5. Click Approve

Vendor Status Review

1. Highlight the vendor and review the Status column
   - *Eligible Vendor*: Indicates all information is complete
   - *Doc. Incomplete*: Indicates additional documentation is required for eligibility to be complete
   - *Ineligible Vendor*: Indicates there are expired documents
   - *Inactive Vendor*: Indicates the vendor is not active for your agency
2. Determine what information needs to be updated or completed
3. Click on the Documentation tab
4. Click View Issues - This will provide a complete list of missing or incomplete documents or information
5. Update information as needed

Work Crew Setup

Crews will be added to WAPLink following instructions for Adding Vendors into WAPLink above. In addition, you will add your crew(s) to the Work Crew tab in WAPLink to allow you to select the crew on the work order.

1. On the left-hand side, expand WAPLink
2. Click Settings
3. Select Work Crews
4. Click New
5. Select the crew members. You must have these members set up in your WAPLink People group (see instructions above).
6. You can also edit the crew or delete the crew entirely by selecting the existing crew and making the necessary changes and clicking save or delete.

Section 8: Monitoring

- Admin Monitoring Tool – being developed
- Field Monitoring Tool

FACSPro User Guide - Monitoring Tool (Commerce).pdf

FACSPro User Guide - Monitoring Tool.pdf

Section 9: Reports

Reporting:

- My Reports and Ad Hoc and Reports are currently in development.

My Reports on Vimeo