

# PY23 Weatherization Assistant Instructions and Library Updates

The following instructions and library updates must be made to Weatherization Assistant prior to starting weatherization work in Program Year 2023.

## Weatherization Assistant Energy Modelling Reminders:

- When a heating system or water heater is replaced as part of an Audit Event as a health and safety measure or as a Standalone Work Order for deemed energy savings around the time of an Audit Event, replacement mandatory or replacement required must be selected, so that the new appliance will be reflected in the energy model.
- When present, home cooling systems, both central and non-central systems, must be modelled in Weatherization Assistant as part of all Audit Events.

## Fund Name Updates:

- PY23 WA EAPWX fund Cost Center naming conventions:
  - EAP/WX Program = EAPWX A2119
  - EAP/WX Carryover Program = EAPWX A2117

## Setup Library Updates:

### Key Parameters

- Update the “Minimum acceptable SIR,” in Key Parameters, Economics tab from 1 to .75 for both NEAT and MHEA Key Parameters

	Name	Value	Units
▶	Real discount rate	3	%
	Minimum acceptable SIR	.75	Factor

- Equipment Heat Pumps and AC

	Name	Value	Units
▶	Window A/C replacement SEER	13.7	Btu/wh
	Central A/C replacement SEER	15	Btu/wh
	Heat pump replacement SEER (Cooling)	15	Btu/wh
	SEER used to impute cooling savings	15	na
	Low flow shower head flow rate	2.5	gal/min
	Refrigerator defrost cycle energy	0.08	kWh

- Key Parameters Night Thermostat Setback
  - Set NEAT and MHEA Night Thermostat Setback to 5 degrees
  - Service providers shall offer client education to encourage a larger setback
  - Service providers shall require either mechanical contractors or QCI to commission all installed programmable thermostats with a 5-degree setback
- Key Parameters Window U Value
  - Site Built Home Replacement Window U Values and Solar Heat Gain Coefficient (SHGC) should reflect replacement windows that are Energy Star or equivalent. I.e. U Value of .30 and SHGC of .42 [Energy Efficient Window & Door Criteria | ENERGY STAR](#)

- Mobile Home Replacement Window U Values should reflect the U Values of available products
- Installed windows must be the same or better U Value as the U Value in the Key Parameters

### Fuel Costs

- **PY23 Audit Fuel Costs SCC (for audits with a site visit date of July 1, 2023, or after)**

Natural Gas	12.308
Oil	4.7801
Electricity	.1549
Propane	2.5248
Wood	171.325
Coal	126.000
Kerosene	5.0301
Other	6.250

### Library Measures

- Activate Cooling Measures and enter costs under “Library Measures” for both NEAT and MHEA

#### NEAT

36 HVAC Systems	Tune cooling system	<input checked="" type="checkbox"/>		3	Costs
37 HVAC Systems	Replace AC	<input checked="" type="checkbox"/>		15	Costs

#### MHEA

41 HVAC Systems	Tune cooling system	<input type="checkbox"/>		3	Costs
42 HVAC Systems	Replace dx cooling equip	<input type="checkbox"/>		15	Costs

### Itemized Costs

- EC Motor Measure Energy Savings. This reflects updates to Minnesota’s CIP Technical Reference Manual (TRM). Please note the practical effect of this will be a decrease in the use of the EC Motor Itemized cost.
  - EC Motor Measures will now have to differentiate between homes with central AC and homes without central AC with the following usages.
    - Annual Energy Savings, Home with Central AC: 248 kWh
    - Annual Energy Savings, Home without Central AC: 170 kWh
- EAPWX Expansion Measures
  - All EAPWX expansion measure names must begin with “EXP.” For example “EXP Mold and Moisture Remediation.”
  - Optional: Create “EXP” itemized costs in the setup library.
  - Examples are found in the PY 21 Policy Manual Addendum – EAPWX Measure Expansion
- General Heat Waste (GHW) Measures
  - See Minnesota Weatherization Assistance Program Policy Manual Section 4.2.4 for GHW measure policy details.
  - All General Heat Waste itemized costs/ user defined measures must begin with the prefix GHW.
  - Optional: Create “EXP” itemized costs in the setup library.
  - Examples:

Measure #	Active <input checked="" type="checkbox"/>	Include In SIR <input type="checkbox"/>	Energy Savings	No EnergySavings
MeasureType	Other			
<b>Measure Name</b>	GHW Furnace/ Air Conditioner Filter			
Default Contractor/Crew				
Default Cost Center				

Measure #	Active <input checked="" type="checkbox"/>	Include In SIR <input type="checkbox"/>	Energy Savings	No EnergySavings
MeasureType	Other			
<b>Measure Name</b>	GHW Door Weatherstrip			
Default Contractor/Crew				
Default Cost Center				

Measure #	Active <input checked="" type="checkbox"/>	Include In SIR <input type="checkbox"/>	Energy Savings	No EnergySavings
MeasureType	Other			
<b>Measure Name</b>	GHW Attic Hatch Weatherstripping			
Default Contractor/Crew				
Default Cost Center				

Measure #	Active <input checked="" type="checkbox"/>	Include In SIR <input type="checkbox"/>	Energy Savings	No EnergySavings
MeasureType	Other			
<b>Measure Name</b>	GHW Door Weatherstripping			
Default Contractor/Crew				
Default Cost Center				

## PY23 WA Library Review and Update Instructions

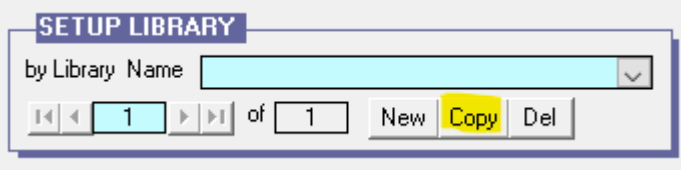
### Measure Cost General Ongoing Review

1. If Recommended Measures costs differ greatly from Work Order estimated and actual measure costs it is an indication that Setup and Supply Library measure costs are not accurate. Agencies should frequently compare Recommended Measures costs to Work Order measure costs.

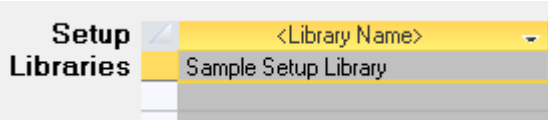
### General Library Updating Instructions

1. Pressing the “References” button will reveal which audits reference this library. There are options to clear the references to the library and to change the references to a new value. This button will be used for information only. Library references should only be cleared or changed with a clear plan in mind.
2. Instructions for updating/ creating a new Setup or Supply Library
  - a. Preparation. Before making changes to agency libraries, please note the following best practices:
    - i. Library updates should be coordinated to reduce the frequency of library updates.
    - ii. Ensure all audits have been removed from staff local drives
    - iii. Ensure the master database has the most recent versions of all audits
    - iv. Create a “dummy client” that will bring the new/ updated library to each local drive
  - b. Updating/ Creating a new Setup or Supply Library
    - i. Because all library updates will apply to previous audits that utilize that library, all but minor library changes should result in a new library.

- ii. If creating a new library, almost always use the “copy” button in the library tab. Pressing the “New,” button will result in a copy of the factory default library.



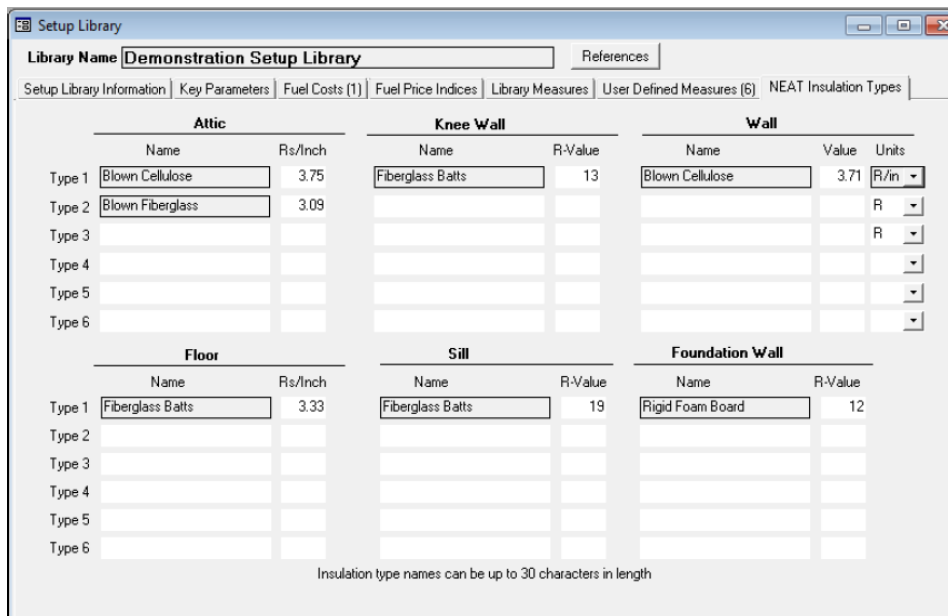
- iii. Rename the library, preferably with a relatively short name that will fit in the rather short Library Name Field.



- iv. Make required changes to the new or updated library.
- v. If using local drives, transfer the “dummy client” to each local drive to ensure that future audit transfers will reflect the new/ updated library.

## Setup Library Review

### 1. NEAT Insulation Values



- Blown Cellulose (loose) 3.75 Rs/Inch, (densepack) 3.71 Rs/Inch
- Blown Fiberglass (loose) 3.09 Rs/Inch. (densepack) 3.6 Rs/Inch
- Fiberglass batts name must indicate R value, i.e. “R13 Fiberglass Batt,” or “R19 Fiberglass Batt.” By including the R value in the name, it will ensure that the R value appears in the measure name in the recommended measure list.
- Foam Product Names must indicate material type and depth, i.e. “Two Part Foam 2,” or Foil-Faced Poly-Isocyanurate 1.5”.” This will ensure that the material type and depth appears in the measure name in the recommended measures list.
  - Foil-Faced Poly-Isocyanurate Foam Board, 1” R6.5, 1.5” R9.8, 2” R13, 3” R19
  - Two Part Spray Foam 1” R6, 1.5” R9, 2” R12, 3” R18
  - Extruded Polystyrene 1” R5, 1.5” R7.5, 2” R10, 3” R15

## 2. Key Parameters

NEAT and MHEA Key Parameters should generally reflect the values below and most should generally not be changed. A few items could reasonably vary from numbers below. For example, nighttime setback could be changed to six degrees instead of five degrees if an SP had a practice to program a six degree setback. MHEA length of night thermostat setback should not exceed eight hours (in our review we noticed some were incorrectly at 16 hours). Other items such as window U values could be changed to reflect, for example, current energy star standards so long as these U values and or standards are stipulated in bid requests and work orders. Another example is that WA has a standard water heater wrap added R value of 7. This should be changed to at a minimum reflect the SWS required R10.

- **Economics**

	Name	Value	Units
▶	Real discount rate	3	%
	Minimum acceptable SIR	.75	Factor

- **Set Points**

	Name	Value	Units
▶	Heating setpoint (daytime)	68	deg F
	Heating setpoint (nighttime)	68	deg F
	Cooling setpoint (daytime)	78	deg F
	Cooling setpoint (nighttime)	78	deg F
	Night setback	5	deg F

- **Insulation—All SPs change Pipe Wrap R value to 10, Duct Insulation to R8**

	Name	Value	Units
▶	Avg annual outside film coeff	4	BTU/hr-sqft-F
	Uninsulated R-value for 'Other' wall type	4.42	F-sqft-hr/Btu
	R-value for 'Other' exterior siding type"	0.6	F-sqft-hr/Btu
	R-value per Inch for the 'Other' existing ceiling insulation type	3.09	F-sqft-hr/Btu-in
	Added duct insulation R value	4	F-sqft-hr/Btu
	Water heater wrap added R value	7	F-sqft-hr/Btu
	Base value of free heat from internals	2900	BTU/hr

- **Equipment—heat pumps and AC. SEER for Window AC 13.7 (WA Manual 9.9 converting EER to SEER=(1.2 × EER) – 0.7, (1.2 x 12) – 0.7 = 13.7.**

	Name	Value	Units
▶	Window A/C replacement SEER	13.7	Btu/wh
	Central A/C replacement SEER	15	Btu/wh
	Heat pump replacement SEER (Cooling)	15	Btu/wh
	SEER used to impute cooling savings	15	na
	Low flow shower head flow rate	2.5	gal/min
	Refrigerator defrost cycle energy	0.08	kWh

- **Windows—Replacement Window U Value and SHGC should reflect at least minimum Energy Star requirements, U Value of .30 and SHGC of .42**

Economics   Set Points   Insulation   Equipment   Windows			
	Name	Value	Units
▶	Replacement Window U-Value	0.46	Btu/F-sqft-hr
	Replacement Window Solar Heat Gain Coefficient	0.62	na
	Replacement LowE Window U-Value	0.42	Btu/F-sqft-hr
	Replacement LowE Window Solar Heat Gain Coefficient	0.42	na
	Retrofit Storm Window Emittance	0.82	na
	Retrofit Storm Window Solar Heat Gain Coefficient	0.895	na
	Retrofit Window Film Surface Emittance	0.9	na
	Retrofit Window Film Solar Heat Gain Coefficient (incl frame)	0.5	na

## 2. MHEA Key Parameters

- **Economics**

	Name	Value	Units
▶	MHEA Real Discount Rate	3	%
	MHEA Minimum Acceptable SIR	.75	Factor
	Spending limit for package of measures	2000	Dollars

- **Set Points**

	Name	Value	Units
▶	MHEA Heating Setpoint (daytime)	68	deg F
	MHEA Heating Setpoint (nighttime)	68	deg F
	MHEA Cooling Setpoint (daytime)	78	deg F
	MHEA Cooling Setpoint (nighttime)	78	deg F
	Thermostat setback amount	5	deg F
	Length of night thermostat setback	8	Hours

- **Insulation—see below**

	Name	Value	Units
▶	Bag size for loose fiberglass insulation	25	Lb
	Density of added loose fiberglass insulation	1.5	Lb/cuft
	Bag size for loose cellulose insulation	25	Lb
	Density of added loose cellulose insulation	3	Lb/cuft
	Interior wall R-value - Winter	1.03	F-sqft-hr/Btu
	Interior wall R-value - Summer	1.03	F-sqft-hr/Btu
	Interior ceiling R-value - Winter	1.01	F-sqft-hr/Btu
	Interior ceiling R-value - Summer	1.32	F-sqft-hr/Btu
	Interior floor R-value - Winter	2.92	F-sqft-hr/Btu
	Interior floor R-value - Summer	2.61	F-sqft-hr/Btu
	Outside wall R-value - Winter	0.17	F-sqft-hr/Btu
	Outside wall R-value - Summer	0.25	F-sqft-hr/Btu
	Existing Loose insulation R-value per inch	2.5	F-sqft-hr/Btu-in
	Existing Batt/Blanket insulation R-value per inch	3.5	F-sqft-hr/Btu-in
	Rigid insulation R-value per inch	4.11	F-sqft-hr/Btu-in
	Foamcore insulation R-value per inch	5	F-sqft-hr/Btu-in

- **Heat Transfer**

	Name	Value	Units
▶	Home leakiness - Loose	2200	cfm
	Home leakiness - Medium	1600	cfm
	Home leakiness - Tight	1200	cfm
	Free heat from interior sources - Day	2400	Btu/hr
	Free heat from interior sources - Night	1000	Btu/hr
	Duct-sealing distribution loss reduction	50	%
	Duct insulation dist. loss reduction	10	%
	Evaporative cooler actual saturating eff	75	%
	Saturating eff for evaporative tune-up	80	%
	Saturating eff for evaporative rplcmnt	80	%
	Cooling system fan power	60	Watts

- **Doors—Must be changed for all SPs**

Library Name: **Sample Setup Library**      References

Setup Library Information    Key Parameters    Fuel Costs (2)    Fuel Price Indices    Library Measures    User Def

Economics    Set Points    Insulation    Heat Transfer    **Doors**    Windows    Base Loads

	Name	Value	Units
	Door U-value - wood with hollow core	0.45	Btu/F-sqft-hr
	Door U-value - wood with solid core	0.4	Btu/F-sqft-hr
	Door U-value - standard mfg. home door	0.4	Btu/F-sqft-hr
	U-value of replacement door	0.2	Btu/F-sqft-hr

- **Windows:** Mobile Home Replacement Window U Values should reflect the U Values of available products

	Name	Value	Units
▶	Window U-value - 1-glazing, Winter	1.1	Btu/F-sqft-hr
	Window U-value - 1-glazing, Summer	1.04	Btu/F-sqft-hr
	Window U-value - 1/plastic storm, Winter	0.55	Btu/F-sqft-hr
	Window U-value - 1/plastic storm, Summer	0.55	Btu/F-sqft-hr
	Window U-value - 1/glass storm, Winter	0.5	Btu/F-sqft-hr
	Window U-value - 1/glass storm, Summer	0.5	Btu/F-sqft-hr
	Window U-value - 2-glazing, Winter	0.58	Btu/F-sqft-hr
	Window U-value - 2-glazing, Summer	0.61	Btu/F-sqft-hr
	Window U-value - 2/plastic storm, Winter	0.4	Btu/F-sqft-hr
	Window U-value - 2/plastic storm, Summer	0.4	Btu/F-sqft-hr
	Window U-value - 2/glass storm, Winter	0.35	Btu/F-sqft-hr
	Window U-value - 2/glass storm, Summer	0.35	Btu/F-sqft-hr
	Skylight U-value - 1-glazing, Winter	1.15	Btu/F-sqft-hr
	Skylight U-value - 1-glazing, Summer	0.8	Btu/F-sqft-hr
	Skylight U-value - 1/plstc storm, Winter	0.5	Btu/F-sqft-hr
	Skylight U-value - 1/plstc storm, Summer	0.36	Btu/F-sqft-hr
	Skylight U-value - 1/glass storm, Winter	0.52	Btu/F-sqft-hr

- **Baseloads—All SPs change Water Heater Wrap R value to R10**

MHEA Low flow shower head flow rate	2.5 gal/min
MHEA Water heater wrap added R value	6 F-sqft-hr/Btu
MHEA Refrigerator defrost cycle energy	0.08 Kwh

### 3. Fuel Costs

#### **2016/2017 Audit Fuel Costs (for audits with a site visit date between October 1, 2017 and September 31, 2019)**

Natural Gas	9.945
Oil	3.179
Electricity	0.122
Propane	1.849
Wood	178.600
Coal	126.000
Kerosene	2.960
Other	6.250

#### **2019/2020 Audit Fuel Costs (for audits with a site visit date between October 1, 2019 and November 14, 2020)**

Natural Gas	10.03
Oil	2.374
Electricity	.128
Propane	1.59
Wood	176.800
Coal	126.000
Kerosene	2.960
Other	6.250

#### **2020/2021 Audit Fuel Costs (for audits with a site visit date after November 15, 2020)**

Natural Gas	9.903
Oil	2.395
Electricity	.131
Propane	1.523
Wood	171.325
Coal	126.000
Kerosene	2.960
Other	6.250

#### **2021/2022 Audit Fuel Costs (for audits with a site visit date of July 1, 2021 or after)**

Natural Gas	8.06
Oil	2.7
Electricity	.1342
Propane	1.582
Wood	171.325
Coal	126.000
Kerosene	2.960
Other	6.250

#### **2021/2022 Audit Fuel Costs (for audits with a site visit date after July 1, 2022 or after)**

Natural Gas	8.04
Oil	3.69
Electricity	0.1342
Propane	2.40
Wood	171.325
Coal	126.000
Kerosene	3.524
Other	6.250

#### 4. Fuel Price Indices Updated 7/1/2019

- Spot Check

Natural Gas	24	8.10	22.89
Natural Gas	25	1.25	23.49
Oil	0	1.00	1.00
Oil	1	0.99	0.96
Oil	2	1.07	1.97
Oil	3	1.11	2.99
Oil	4	1.08	3.95
Oil	5	1.03	4.83
Oil	6	1.03	5.70
Oil	7	1.03	6.53
Oil	8	1.04	7.35
Oil	9	1.05	8.16
Oil	10	1.06	8.95
Oil	11	1.08	9.73
Oil	12	1.09	10.49
Oil	13	1.11	11.25
Oil	14	1.13	12.00
Oil	15	1.14	12.73
Oil	16	1.15	13.44
Oil	17	1.17	14.15
Oil	18	1.17	14.84
Oil	19	1.20	15.52
Oil	20	1.21	16.19
Oil	21	1.22	16.85
Oil	22	1.24	17.50
Oil	23	1.25	18.13
Oil	24	8.10	22.11

#### 5. Library Measures NEAT and MHEA

- Check the costs for accuracy to set prices/ typical costs in the service territory and/ or for crews
- Check the measure lifetimes to those below.
  - a. NEAT Library Measures



#	Measure Type	Measure Name	Active	Default Contractor	Default Cost Center	Life (yr)	
1	Building Insulation	Attic insulation R11	<input checked="" type="checkbox"/>			24	Costs
2	Building Insulation	Attic insulation R19	<input checked="" type="checkbox"/>			24	Costs
3	Building Insulation	Attic insulation R30	<input checked="" type="checkbox"/>			24	Costs
4	Building Insulation	Attic insulation R38	<input checked="" type="checkbox"/>			24	Costs
5	Building Insulation	Attic insulation R49	<input checked="" type="checkbox"/>			24	Costs
6	Building Insulation	Fill ceiling cavity	<input checked="" type="checkbox"/>			24	Costs
7	Building Insulation	Sillbox insulation	<input checked="" type="checkbox"/>			20	Costs
8	Building Insulation	White roof coating	<input checked="" type="checkbox"/>			7	Costs
9	Building Insulation	Foundation wall insulation	<input checked="" type="checkbox"/>			20	Costs
10	Building Insulation	Floor insulation R11	<input checked="" type="checkbox"/>			20	Costs
11	Building Insulation	Floor insulation R19	<input checked="" type="checkbox"/>			20	Costs
12	Building Insulation	Floor insulation R30	<input checked="" type="checkbox"/>			20	Costs
13	Building Insulation	Floor insulation R38	<input checked="" type="checkbox"/>			20	Costs

#	Measure Type	Measure Name	Active	Default Contractor	Default Cost Center	Life (yr)	
14	Building Insulation	Wall insulation	<input checked="" type="checkbox"/>			24	Costs
15	Building Insulation	Kneewall insulation	<input checked="" type="checkbox"/>			24	Costs
16	Building Insulation	Duct insulation	<input checked="" type="checkbox"/>			20	Costs
17	Doors and Windows	Window sealing	<input checked="" type="checkbox"/>			10	Costs
18	Doors and Windows	Door replacement	<input checked="" type="checkbox"/>			20	Costs
19	Doors and Windows	Storm windows	<input checked="" type="checkbox"/>			15	Costs
20	Doors and Windows	Window replacement	<input checked="" type="checkbox"/>			20	Costs
21	Doors and Windows	Low E windows	<input checked="" type="checkbox"/>			20	Costs
22	Doors and Windows	Window shading (awning)	<input checked="" type="checkbox"/>			10	Costs
23	Doors and Windows	Sun screen fabric	<input checked="" type="checkbox"/>			10	Costs
24	Doors and Windows	Sun screen louvered	<input checked="" type="checkbox"/>			15	Costs
25	Doors and Windows	Window film	<input checked="" type="checkbox"/>			15	Costs
26	HVAC Systems	Thermal vent damper	<input checked="" type="checkbox"/>			10	Costs

#	Measure Type	Measure Name	Active	Default Contractor	Default Cost Center	Life (yr)	Costs
27	HVAC Systems	Electric vent damper	<input checked="" type="checkbox"/>			10	Costs
28	HVAC Systems	IID	<input checked="" type="checkbox"/>			10	Costs
29	HVAC Systems	Electric vent damper IID	<input checked="" type="checkbox"/>			10	Costs
30	HVAC Systems	Flame retention burner	<input checked="" type="checkbox"/>			10	Costs
31	HVAC Systems	Tune heating system	<input checked="" type="checkbox"/>			3	Costs
32	HVAC Systems	Replace heating system	<input checked="" type="checkbox"/>			20	Costs
33	HVAC Systems	High eff furnace	<input checked="" type="checkbox"/>			20	Costs
34	HVAC Systems	High eff boiler	<input checked="" type="checkbox"/>			20	Costs
35	HVAC Systems	Smart thermostat	<input checked="" type="checkbox"/>			15	Costs
36	HVAC Systems	Tune cooling system	<input checked="" type="checkbox"/>			3	Costs
37	HVAC Systems	Replace AC	<input checked="" type="checkbox"/>			15	Costs
38	HVAC Systems	Evaporative cooler	<input checked="" type="checkbox"/>			15	Costs
39	HVAC Systems	Install/Replace heatpump	<input checked="" type="checkbox"/>			15	Costs
40	Baseloads	Lighting retrofits	<input checked="" type="checkbox"/>			10	Costs
41	Baseloads	Refrigerator replacement	<input checked="" type="checkbox"/>			15	Costs
42	Baseloads	Water heater tank insulation	<input checked="" type="checkbox"/>			13	Costs
43	Baseloads	Water heater pipe insulation	<input checked="" type="checkbox"/>			13	Costs
44	Baseloads	Low flow showerheads	<input checked="" type="checkbox"/>			15	Costs
45	Baseloads	Water heater replacement	<input checked="" type="checkbox"/>			13	Costs

b. MHEA Library Measures

Library Name: **Setup Library** References

Setup Library Information | Key Parameters | Fuel Costs (2) | Fuel Price Indices | Library Measures | User Defined Measures (0) | NEAT Insulation Types

#	Measure Type	Measure Name	Active	Default Contractor	Default Cost Center	Life (yr)	Costs
1	General Heat Waste ark	Seal ducts	<input checked="" type="checkbox"/>			10	Costs
2	General Heat Waste ark	General air sealing	<input checked="" type="checkbox"/>			10	Costs
3	Building Insulation	Wall fiberglass batt insl	<input checked="" type="checkbox"/>			24	Costs
4	Building Insulation	Wall fiberglass batt insl in Addition	<input checked="" type="checkbox"/>			24	Costs
5	Building Insulation	Wall cellulose loose insl	<input checked="" type="checkbox"/>			24	Costs
6	Building Insulation	Wall cellulose loose insl in Addition	<input checked="" type="checkbox"/>			24	Costs
7	Building Insulation	Wall fiberglass loose insl	<input checked="" type="checkbox"/>			24	Costs
8	Building Insulation	Wall fiberglass loose insl in Addition	<input checked="" type="checkbox"/>			24	Costs
9	Building Insulation	Floor cellulose loose insl	<input checked="" type="checkbox"/>			20	Costs
10	Building Insulation	Floor cellulose loose insl in Addition	<input checked="" type="checkbox"/>			20	Costs
11	Building Insulation	Floor fiberglass loose insl	<input checked="" type="checkbox"/>			20	Costs
12	Building Insulation	Floor fiberglass loose insl in Addition	<input checked="" type="checkbox"/>			20	Costs
13	Building Insulation	Roof cellulose loose insl	<input checked="" type="checkbox"/>			24	Costs

Records: 14 < 1 of 49 > | No Filter | Search

MHEA

VIEW | Mobile Home (MHEA) Measures | Select All | UnSelect All | Invert Select | All Library Measure Costs

#	Measure Type	Measure Name	Active	Default Contractor	Default Cost Center	Life (yr)	Costs
14	Building Insulation	Roof cellulose loose insl in Addition	<input checked="" type="checkbox"/>			24	Costs
15	Building Insulation	Roof fiberglass loose insl	<input checked="" type="checkbox"/>			24	Costs
16	Building Insulation	Roof fiberglass loose insl in Addition	<input checked="" type="checkbox"/>			24	Costs
17	Building Insulation	Add skirting	<input checked="" type="checkbox"/>			10	Costs
18	Building Insulation	Add skirting on Addition	<input checked="" type="checkbox"/>			10	Costs
19	Building Insulation	White coat roof	<input checked="" type="checkbox"/>			7	Costs
20	Building Insulation	White coat roof in Addition	<input checked="" type="checkbox"/>			20	Costs
21	Doors and Windows	Replace marked doors (mandatory)	<input checked="" type="checkbox"/>			15	Costs
22	Doors and Windows	Replace wooden doors	<input checked="" type="checkbox"/>			15	Costs
23	Doors and Windows	Replace wooden doors in Addition	<input checked="" type="checkbox"/>			15	Costs
24	Doors and Windows	Storm doors	<input checked="" type="checkbox"/>			10	Costs
25	Doors and Windows	Storm doors in Addition	<input checked="" type="checkbox"/>			10	Costs
26	Doors and Windows	Window sealing	<input checked="" type="checkbox"/>			10	Costs

Library Name: Setup Library							
#	Measure Type	Measure Name	Active	Default Contractor	Default Cost Center	Life (yr)	Costs
27	Doors and Windows	Window sealing in Addition	<input checked="" type="checkbox"/>			10	Costs
28	Doors and Windows	Replace single paned windows	<input checked="" type="checkbox"/>			20	Costs
29	Doors and Windows	Replace single paned windows in Ad	<input checked="" type="checkbox"/>			20	Costs
30	Doors and Windows	Plastic storm windows	<input checked="" type="checkbox"/>			5	Costs
31	Doors and Windows	Plastic storm windows in Addition	<input checked="" type="checkbox"/>			5	Costs
32	Doors and Windows	Glass storm windows	<input checked="" type="checkbox"/>			15	Costs
33	Doors and Windows	Glass storm windows in Addition	<input checked="" type="checkbox"/>			15	Costs
34	Doors and Windows	Add awnings	<input checked="" type="checkbox"/>			10	Costs
35	Doors and Windows	Add awnings in Addition	<input checked="" type="checkbox"/>			15	Costs
36	Doors and Windows	Add shade screens	<input checked="" type="checkbox"/>			10	Costs
37	Doors and Windows	Add shade screens in Addition	<input checked="" type="checkbox"/>			10	Costs
38	HVAC Systems	Setback thermostat	<input checked="" type="checkbox"/>			15	Costs
39	HVAC Systems	Tune heating system	<input checked="" type="checkbox"/>			3	Costs
MHEA							
40	HVAC Systems	Evaporative cooling	<input checked="" type="checkbox"/>			15	Costs
41	HVAC Systems	Tune cooling system	<input checked="" type="checkbox"/>			3	Costs
42	HVAC Systems	Replace dx cooling equip	<input checked="" type="checkbox"/>			15	Costs
43	Baseloads	Lighting retrofits	<input checked="" type="checkbox"/>			10	Costs
44	Baseloads	Refrigerator replacement	<input checked="" type="checkbox"/>			15	Costs
45	Baseloads	Water heater tank insulation	<input checked="" type="checkbox"/>			13	Costs
46	Baseloads	Water heater pipe insulation	<input checked="" type="checkbox"/>			13	Costs
47	Baseloads	Low flow showerheads	<input checked="" type="checkbox"/>			15	Costs
48	Baseloads	Water heater replacement	<input checked="" type="checkbox"/>			13	Costs
49	HVAC Systems	Replace heating system	<input checked="" type="checkbox"/>			20	Costs

## 6. User Defined Measures

- Check Costs for reasonability

## Supply Library Review

1. Check the water heater, refrigerator, and lighting costs for accuracy to set prices/ typical costs in the service territory and/ or for crews.