

**SOUTH CAROLINA**  
**WEATHERIZATION ASSISTANCE PROGRAM**  
**POLICIES AND PROCEDURES**

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### INTRODUCTION

The South Carolina Policies and Procedures manual contain policies and requirements for the South Carolina Weatherization Assistance Program. Community Action Agencies (CAAs) receiving funding from the State of South Carolina for local administration of the weatherization program shall follow the guidelines contained in this manual relative to technical and program requirements.

The Weatherization Assistance Program (WAP) is administered through the state of South Carolina Department of Administration, Office of Economic Opportunity. Funding for the Weatherization Assistance Program comes from the U.S. Department of Energy (DOE) and the Department of Health and Human Services (HHS).

The purpose of the Weatherization Assistance Program is to provide energy conservation measures to the low-income population. In order to meet this need, the South Carolina Office of Economic Opportunity Weatherization Assistance Program (SCOEO WAP) contracts with local Weatherization subgrantees to administer WAP services. Agencies under contract to provide WAP services may use their own agency crews or private contractors to provide energy conservation measures. In either case, the local administrator is ultimately responsible for the quality of workmanship and for the effectiveness of services supplied.

Within the framework of the federal regulations and state codes, South Carolina has the flexibility to operate the Weatherization Assistance Program in a manner that is best for the low-income families in South Carolina. South Carolina gives much of that same discretion to sub-grantees administering WAP at the local level. Each year, SCOEO must submit to DOE a State Plan for how the WAP will be administered within South Carolina. The State Plan deals with adherence to federal regulations, production numbers, statistics for elderly and disabled persons assisted, monitoring plan, budgets, and training and technical assistance dollars.

Since the State of South Carolina is the grantee of DOE, it has the responsibility to ensure that services across South Carolina have uniformity and that an applicant will be treated equitably in any service area of the state. Each individual subgrantee is regularly monitored for compliance by state monitoring personnel evaluating the agencies performance in the provision of the weatherization program.

### OVERVIEW

The South Carolina Weatherization Assistance Program (WAP) Policy and Procedures Manual is designed as a comprehensive reference on policies and procedures for the management of the WAP. The manual provides Information regarding WAP policies mandated by the State and Federal government. Also, the manual outlines required procedures necessary for the operation of the WAP. The manual is a living document that is reviewed and revised as needed. Input from staff and program users is considered when making changes to the manual.

## 2100 ENERGY AUDIT/INSPECTION/TESTING PROTOCOL

### 2101 AUDIT/INSPECTION/TESTING REQUIREMENTS:

A complete **audit** and **inspection** is required for each home weatherized. Inspections shall include energy audit reviews as well as the required testing listed below. Inspection approval is mandatory for a dwelling to be considered a completion. All inspections shall be completed by a certified QC Inspector.

### 2102 BLOWER DOOR TESTING:

Required blower door test results shall be documented on the IWC and Final Inspection Form

### 2103 HEALTH AND SAFETY INSPECTION/TESTING:

All dwellings weatherized require an audit and inspection health and safety inspection and testing. An audit of the home includes the Health and Safety Protocol as defined by DOE.

The Protocol includes the following in the order listed:

1. Gas Leak test in and around the home.
2. Ambient Air test for Carbon Monoxide (CO).
3. CAZ testing of all vented combustion appliances.
4. Zone Pressure Diagnostic test when dwelling has an attached or "Tuck-Under" garage.

### 2104 COMBUSTION APPLIANCE ZONE (CAZ) TESTING:

All dwellings with combustion appliances within the pressure boundary require CAZ Testing. Auditor and inspector shall perform and document test results on the IWC. All vented combustion appliances shall be tested daily (at the end of the weatherization work day), by performing a CAZ test after air sealing measures are installed, including sidewall dense pack insulation.

### 2105 MULTI-FAMILY WEATHERIZATION MEASURES:

An independent energy audit shall be conducted on any multi-family building housing 5 or more units. The independent audit shall have written pre approval by DOE prior to the commencement of weatherization services.

### 2106 ENERGY CONSERVATION MEASURES (ECM):

Listed below is a list of ECMs. ECMs should always be considered in every assessment and if necessary, performed.

- Low Flow Shower Head
- Water Heater Insulation
- Clock Set Back Thermostat
- Heating System Tune-ups/Repairs
- Refrigerator replacement

**Note:** Health and safety factors which cannot be corrected, e.g., removal of mold, odors, viruses, bacteria, unsanitary conditions (including raw sewage), and rotting wood-may require that weatherization services be deferred until the problem can be corrected or referred to another agency that can take remedial action. The Health and Safety condition shall be properly documented in the client file. Factors which would limit the effectiveness of any measure shall be properly documented. Client circumstances (e.g., health) shall also be considered.

Clients who refuse measures, should be deferred. Clients should understand through the client education process, the scope of work and the necessity for measure installation, including the interaction of all the measures to achieve "whole-house" weatherization required by the regulation.

**2107 DOE ATTIC/ROOF COSTING:**

Roof replacement is not allowed.

**2200 NEAT**

NEAT audits are required for the determination of weatherization measures to be installed for one to four unit site-built dwellings.

**2201 NEAT SETUP:**

Set up instructions are located at the following web site: <http://www.waptac.org/WeatherizationAssistant/Weatherization-Assistant-Manuals.aspx>

**2202 NAMING AGENCY'S NEAT SETUP LIBRARY FILE:**

Agencies shall create and maintain an annual Setup Library file. Identify the file with the agency acronym and the program year as the title, for example: OEO2016.MDB.

**2203 MATERIAL AND LABOR COSTS:**

Subgrantees shall enter their material and labor costs for the allowable NEAT measures. Note: Material and Labor costs shall be separated into the Material and Labor columns respectively.

**2204 FUEL COSTS:**

Subgrantees shall enter approved work plan fuel cost data in the "Fuel Cost" tab of the NEAT "Set up Library." Average costs will be established from recognized suppliers and "spike" or season high costs will not be permitted. Subgrantees may at their discretion utilize individual client fuel use data collected from the fuel supplier and entered into the "Utility Bills" tab of the NEAT AUDIT.

Fuel Type	In Units of	Unit Cost	Heat Content (MMBtu)
Natural Gas	Mcf	12.610	1.000000
Oil	Gallon	3.379	0.1400000
Electricity	kWh	0.120	0.003413
Propane	Gallon	3.086	0.090000
Wood	Cord	250.00	20.200000
Coal	Ton	72.750	21.000000
Kerosene	Gallon	3.710	0.1300000
Other	MMBtu	6.250	1.000000

**2205 FUEL ESCALATION RATES AND DISCOUNT RATE:**

The Fuel Escalation Rates and Discount Rate used in the NEAT and MHEA setup shall not be altered. Subgrantees shall use the default values supplied in the NEAT/MHEA program files.

Justification for modification fuel costs must be submitted to the OEO for approval as part of the Subgrantee's work plan or prior to implementation if submitted separately from the work plan.

**2206 NEAT CANDIDATE MEASURES:**

The NEAT setup shall allow for the consideration of the following Setup Library Measures:

- Attic insulation (all R values)
- Foundation insulation

- Floor insulation (all R values)
- Wall insulation
- Wall insulation R13 batt
- Window sealing/Weatherize (includes glass replacement)
- Storm windows
- Low E windows
- Furnace tune-up
- Replace heating system (80%-85%)
- High efficiency furnace (90+ %)
- Lighting retrofits (Compact Fluorescent Light Bulbs)
- Refrigerator replacement
- Water Heater replacement (DHW)
- Replace AC
- Water heater tank insulation
- Water heater pipe insulation
- Low flow showerheads
- Sillbox Insulation
- Smart thermostat
- Install/Replace heat-pump
- Duct Insulation
- Foundation Insulation
- Sun screen fabric
- Sun Screen louvered
- Window film

**2207 FURNACE SIZING:**

The HVAC contractor must complete a Manual J prior to weatherization. The HVAC contractor must install what the properly sized unit based on the results of the Manual J.

**2208 FILE DOCUMENTS:**

The client/job files for units weatherized using NEAT audits shall include:

- IWC
- NEAT Output Recommended Measures Report (shall be printed)
- Manual J

<b>2300 MHEA</b>
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MHEA audits are required for the determination of weatherization measures to be installed for manufactured homes. Weatherization measures with a computed Savings to Investment Ratio (SIR) of 1 or greater as determined by a MHEA audit shall be addressed.

**2301 MHEA SETUP:**

Set up instructions are located at the following web site: <http://www.waptac.org/Weatherization-Assistant/Weatherization-Assistant-Manuals.aspx>



**2302 SETUP LIBRARY FUEL COSTS - SIMPLIFIED NATURAL GAS CONVERSIONS:**

Subgrantees shall enter approved work plan fuel cost data in the Fuel Cost tab of the MHEA "Set up Library. Average costs will be established from recognized suppliers and "spike" or season high costs will not be permitted. Subgrantees may at their discretion utilize individual client fuel use data collected from the fuel supplier and entered into the "Utility Bills" tab of the "MHEA AUDIT".

Fuel Type	In Units of	Unit Cost	Heat Content (MMBtu)
Natural Gas	Mcf	12.610	1.000000
Oil	Gallon	3.379	0.1400000
Electricity	kWh	0.120	0.003413
Propane	Gallon	3.086	0.090000
Wood	Cord	250.00	20.200000
Coal	Ton	72.750	21.000000
Kerosene	Gallon	3.710	0.1300000
Other	MMBtu	6.250	1.000000

**2303 FUEL ESCALATION RATES AND DISCOUNT RATE:**

The Fuel Escalation Rates and Discount Rate used in the MHEA setup shall not be altered. Subgrantees shall use the default values supplied in the MHEA program files.

Justification for modification fuel costs must be submitted to the OEO for approval as part of the Subgrantee's work plan or prior to implementation if submitted separately from the work plan.

**2304 MHEA - MATERIAL AND LABOR COSTS:**

Subgrantees with crews shall enter their material and labor costs (with fringe) for the allowable MHEA measures.

**Note:** Material and Labor costs shall be separated into the Material and Labor columns respectively.

**2305 MHEA CANDIDATE MEASURES:**

The MHEA setup shall allow for the consideration of the following Candidate Measures/weatherization measures:

- General air sealing
- Wall fiberglass batt insulation (if open cavity)
- Wall fiberglass batt insulation in Addition
- Floor fiberglass loose insulation
- Floor fiberglass loose insulation in Addition
- Roof fiberglass loose insulation in Addition
- Roof fiberglass loose insulation
- Storm doors (replacement of single "combo" prime door allowable)
- Storm door in Addition (replacement of single "combo" prime door allowable)
- Window sealing/Weatherize (includes glass replacement)
- Window sealing/Weatherize in addition (includes glass replacement)
- Replace single paned windows
- Replace single paned windows in addition
- Plastic storm windows

- Plastic storm windows in addition
- Glass storm windows
- Glass storm windows in addition
- Tune heating system
- Replace heating system
- Lighting Retrofit
- Refrigerator replacement
- Water heater replacement
- Seal ducts
- White coat roof
- White coat roof on addition
- Setback (programmable) thermostat
- Water heater tank insulation
- Water heater pipe insulation
- Low flow showerheads
- Add shade screens
- Add shade screens in addition

**Subgrantees shall turn off the following Candidate Measures in the MHEA setup (they are not allowable weatherization measures):**

- Wall cellulose loose insulation
- Floor cellulose loose insulation
- Roof cellulose loose insulation
- Add skirting
- Add skirting on addition
- Replace wooden doors
- Replace wooden door in addition
- Evaporative cooling
- Replace dx cooling equipment

#### **2306 MHEA - FURNACE SIZING:**

The HVAC contractor must complete a Manual J prior to weatherization. The HVAC contractor must install what the properly sized unit based on the results of the Manual J.

#### **2307 MHEA - FILE DOCUMENTS:**

The client/job files for units weatherized using MHEA audits shall include:

- MHEA Job Input Summary Report (may be stored electronically )
- MHEA Output Summary Report (shall be printed)
- Manual J

<b>2400 WEATHERIZATION MEASURE STANDARDS AND SPECIFICATIONS</b>
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Standards and specifications pertaining to Weatherization Measures are contained in this section.

#### **2401 ATTIC INSULATION:**

When called for by the NEAT/MHEA audit all attic areas (attic floors, knee walls, and slopes) between heated and unheated areas shall be insulated.

#### **2402 INSULATION LEVELS:**

Install ceiling insulation at the level determined by the NEAT/MHEA audit.

### **2403 PRECAUTIONS AND ATTIC PREPARATION REQUIREMENTS:**

Prior to insulation, all by-passes between heated and unheated areas shall be air-sealed (e.g., ceiling penetrations, balloon frame construction, floor cavity below knee wall) and all venting and attic prep requirements shall be completed.

- Inspect the areas to be insulated to identify potential safety hazards.
- Inspect the ceiling and roof for structural soundness and ability to support additional loads. Inspect for moisture problems. In the case of wiring that is cracked, frayed, deteriorated, or otherwise in question, do not add insulation to this area. Any evidence of problems with wiring in the attic shall be inspected and corrected. If the correction is completed using WAP funding, the work must be completed by a licensed electrician. Identify and provide noncombustible (e.g. metal) barriers for all heat producing devices where cellulose insulation is to be installed. Maintaining a minimum 3" clearance from cellulose insulation (clearance of insulation from attic furnaces and other heat producing sources must be provided in accordance with the governing code). All barriers shall extend at least 4" above the height of the settled insulation. Attic ceiling access barriers are to be made of a rigid material (e.g. minimum ¾ inch plywood, pine, etc.).
- Dryer, kitchen, and bath fan vents shall be extended to the outside. Vents shall be equipped with a water-proof cap and back damper.
- Ducts shall be aluminum or galvanized sheet metal, or a labeled aluminum flex duct. Exposed exhaust fan ducts in unconditioned spaces shall be insulated.

**Note: SC Variance - Dryer Ducting does not need to be insulated.**

- Heat ducts and pipes passing through unheated attic areas shall be insulated. Before insulating, ducts and pipes shall be inspected.
- Ducts shall be sealed, and supported.

### **2404 CEILING INSULATION APPLICATION:**

All insulation material shall be installed in accordance with requirements of the governing code and the manufacturer's recommendations. It shall be kept dry and free of extraneous materials.

### **2405 KNEEWALL INSULATION APPLICATION:**

When called for by the NEAT/MHEA audit all knee walls and access doors between heated and unheated areas shall be insulated, including weatherstripping. All insulation material shall be installed in accordance with requirements of the SWS and SC Field Guide.

### **2406 SLOPED CEILING INSULATION APPLICATION:**

Inspect the area to be insulated to identify potential safety problems. Sloped ceiling areas insulated with batt or blanket type of insulation shall maintain an air space between the roof deck and the insulation. Sloped ceiling areas insulated with dense packed cellulose do not require an air space and must be air sealed from other attic spaces.

### **2500 ATTIC VENTILATION**

Proper and adequate ventilation must be included to ensure the effectiveness of the insulation and guard against deterioration caused by moisture accumulation. Ventilation shall be installed to meet 2012 International Residential Code (IRC) requirements.

## **2600 DUCT/PIPE INSULATION & DUCT/SEAL REPAIR/REPLACEMENT**

All ducts and pipes (excluding drain pipes), located in unheated areas or areas which are being insulated and ventilated, (e.g., attics and crawl spaces) shall be insulated outside the pressure/temperature barrier identified during assessment.

### **2601 PRECAUTIONS AND PREPARATION REQUIREMENTS:**

All ducts and pipes shall be thoroughly inspected for leakage and proper support.

### **2602 DUCT SEALING/REPAIR/REPLACEMENT:**

Seal, repair and/or replace all supply and return air ducts as required to insure the integrity of the systems. Where possible, problems related to the fit of ductwork shall be corrected regardless of location of ductwork (both in heated and unheated areas). Typical problems include ducts disconnected at joints, holes in ducts, seams in ducts open and bent boots.

### **2603 INSULATION LEVEL:**

Air distribution ducts and water pipe insulation shall comply with 2012 IRC.

Duct and pipe insulation shall comply with DOE/WAP Appendix A, Minimum Standards for WAP Materials.

### **2604 FURNACE FILTERS:**

Dirty or non-existent furnace filters shall be replaced. Clients shall be instructed in proper intervals for replacement of the filters as a part of the Client Education portion of South Carolina's Weatherization Assistance Program. Replacement filters must have a Minimum Efficiency Reporting Value (MERV) rating of 6 or more.

### **2605 SEALING BLOWER COMPARTMENT:**

Ensure that the blower compartment on both supply and return sides are/is sealed (e.g., openings sealed, properly fitting door, a filter rack cover is in place, etc.).

### **2606 DUCT SIZING:**

New duct work shall be sized in accordance with the 2012 IRC.

### **2607 BAND JOIST (SILL BOX) INSULATION:**

When called for by the NEAT audit, all band joist pockets located between heated and unheated areas shall be insulated. Insulation shall meet the requirements of SWS and SC Field Guide.

## **2700 FOUNDATION INSULATION**

### **2701 BAND JOIST (SILL BOX) INSULATION:**

When called for by the NEAT audit or the measures priorities, all band joist pockets located between heated and unheated areas shall be insulated. Insulation shall meet the requirements of SWS and SC Field Guide.

### **2702 FLOOR INSULATION:**

When called for by the NEAT audit, floors between heated and unheated areas shall be insulated.

### **2703 VAPOR BARRIER:**

When floor or perimeter insulation is required, and a dirt floor(s) exists, the dirt floor shall be covered with a:

- Minimum 6 mil polyethylene film.
- Perm rating – 0.1
- Meets tear and puncture resistance standard ASTM E1745.
- Covers 100% of the exposed crawl space floor.

- Where seams exist, it will be overlapped a minimum of 12" using reverse or upslope lapping technique. Vapor barrier may be mechanically fastened with stitch staples. The objective is to keep water under the liner. Vapor barrier will extend a minimum of 6" up the foundation wall and piers.

**2800 FOUNDATION VENTILATION**

Proper and adequate ventilation must be included to ensure the effectiveness of the insulation and guard against deterioration caused by moisture accumulation. If vents exist they shall not be removed, covered, or otherwise disabled. When installing new vents they shall comply with 2012 IRC.

**2900 FURNACE/SPACE HEATER REPLACEMENT**

Program funds may be used to replace unsafe heating systems. An example of an unsafe heating system would be a combustion unit that has a cracked heat exchanger. The NEAT Audit and/or complete Manual "J" shall be used for sizing purposes.

**2901 INSTALLATION:**

Installation shall be completed by a licensed mechanical contractor. Installation shall be in accordance with the requirements of the governing code and manufacturer's recommendations.

New forced air heating systems shall have a filter rack with a cover, installed in the return air plenum, in an easily accessible location.

**2902 SPACE HEATERS:**

Compliance with the DOE Space Heater Policy is required. Un-vented space heaters as the primary heat source **must** be replaced with vented space heaters prior to any weatherization activities. The purchase/installation of un-vented space heaters is prohibited. Mobile Homes shall not pass inspection if un-vented space heaters are on the premises.

**2903 DUCT SIZING:**

New duct work shall be sized in accordance with the Manual D.

Seal, repair and/or replace all supply and return air ducts as required to insure the integrity of the systems. Where possible, problems related to the fit of ductwork shall be corrected regardless of location of ductwork (both in heated and unheated areas). Typical problems include ducts disconnected at joints, holes in ducts, seams in ducts open and bent boots.

**2904 INFILTRATION/EXFILTRATION/MAJOR BYPASS**

Infiltration/Exfiltration/Major Bypass shall be addressed to the extent dictated by blower door testing.

**2905 CERTIFICATION:**

Once the unit has been installed, the mechanical contractor must place identification on the appliance in plain view. The identification shall indicate the date of installation and the name and phone number of the mechanical contractor. The mechanical permit number shall be stated on the approved field audit and/or a copy of the permit attached on new installations. All installations are subject to jurisdiction verification.

**3000 INFILTRATION/EXFILTRATION/MAJOR BYPASS**

Infiltration/Exfiltration/Major Bypass shall be addressed to the extent dictated by blower door testing.

**3001 BLOWER DOOR TESTING:**

Blower door testing shall be utilized to identify leakage.

**Best Practice** – To establish a target, the infiltration reduction goal of 1 CFM<sup>50</sup> per square foot is recommended. However, all homes may not allow reaching this goal cost effectively. When air sealing efforts are started, crew participants shall check at an early interval to determine whether air sealing efforts can be completed cost effectively calculating the man hours spent to the level of reduction achieved. The file shall be thoroughly documented when structures prove to be too difficult to reach infiltration reduction goals within allowed budgets. Efforts and costs shall be curtailed as soon as conditions are recognized to be beyond the limits of cost effectiveness. Targets that are easily reached within allowed budget may seal beyond 1 CFM per square foot.

### **3002 MAJOR BYPASSES:**

Major bypasses are defined as openings/direct penetrations between heated and unheated areas of ½ inch or greater. Major bypasses are considered mandatory weatherization measures and shall be addressed.

Major bypasses, as determined by blower door testing, are generally defined as openings/direct penetrations to the interior, between heated and unheated areas, of ½ inch or greater, if in the pressure planes (foundation areas/ceiling and within three feet of the ceiling) and other specific large openings into heated areas (from unheated areas) which may be subject to leakage (e.g., broken glass, missing or broken windows and doors, open dryer vents). Examples of ½ inch gaps in the pressure planes that generally shall be addressed:

- Access Openings
- Mechanical Penetrations
- Fireplace Damper
- Balloon Frame Construction
- Knee wall Floors

### **3003 INFILTRATION/EXFILTRATION:**

Infiltration/exfiltration is defined as openings/direct penetrations between heated and unheated areas of less than ½ inch.

### **3004 DOOR REPLACEMENT:**

Replacement, repair, or installation of doors is not an allowable health and safety expense.

### **3005 CLOSING OFF FIREPLACES:**

Unused fireplaces with no damper or a poorly fitting damper and no other existing means of sealing shall be closed off to stop infiltration/exfiltration/major bypass.

- Blocking shall not be of a permanent nature (shall be removable).
- Blocking shall be flagged
- Documented in the NEAT/MHEA audit. Client must be informed of blocking procedure.

Fireplaces which are used and cannot be effectively closed off by the damper, fireplace doors or other means, shall be repaired or otherwise corrected to allow closure when not in use.

### **3006 SEALING NEW WOOD/WEATHERIZATION MATERIALS:**

Wood and similar materials requiring a sealer shall be so protected whenever moisture may affect these materials.

### **3007 DECAY RESISTANT WOOD REQUIREMENTS:**

Code requirements for use of pressure treated or other approved decay-resistant wood shall be complied with. Generally any wood within 8" of exposed earth must be pressure treated or otherwise approved for use.

## 3100 HEALTH AND SAFETY (MANDATORY) MEASURES

### 3101 Clothes Dryer Venting

Un-vented clothes dryers shall be vented to the outside. Clothes dryers shall be vented directly to the outside. Clothes dryers shall be vented using aluminum or galvanized sheet metal or approved aluminum flex duct (UL labeled) and in accordance with 2012 IRC. Outdoor dryer vent caps shall have a backdraft damper that closes when the dryer is not being used.

**Variance:** The dryer vent pipe does not require it to be insulated.

### 3102 Smoke Alarm

Smoke detectors are required as a health and safety measure.

#### Material Specifications

- Smoke Alarm listed to UL 217.
- Powered by factory sealed, non-removable lithium batteries.

#### Ten-Year Warranty

Smoke Alarm manufacturer shall warrant Alarm and lithium batteries for minimum 10 years.

#### Location

- An Alarm shall be installed inside each bedroom and sleeping area.
- An Alarm shall also be installed in the hall near every sleeping area. If a hall is over 40 feet long, install an Alarm at each end.
- In multi-level dwellings, an Alarm shall be installed:
  - On each occupied level of the dwelling, including an occupied attic
  - At the top of stairway leading from one floor to another, and
  - At the bottom of basement stairway.
- Alarms shall not be installed within garage or unconditioned space.
- Alarms shall not be installed in damp, humid or steamy areas, or within 20' of kitchen, combustion appliances, bathrooms or laundry rooms.
- Alarms shall not be installed in drafty areas, or within 3' of forced air supply registers or return grilles, ceiling or whole house ventilation fans, entrance doors or openable windows.
- Alarms shall not be installed within 1' of fluorescent lights.

#### Installation

- Smoke Alarms shall be ceiling-mounted, at least 4" away from wall.
- In older mobile homes which may have little or no insulation in roof cavity, alarms may be mounted onto an interior wall, 4" to 12" down from ceiling.
- Installation shall be in compliance with these standards, manufacturer's instructions, and local codes.

#### Existing Smoke Alarm

- Existing Smoke Alarm shall be tested for proper operation by using the Alarm's "Test" button.
- If Alarm functions properly, it shall remain in service; if not, it shall be replaced.

#### Alarm Operation and Response

- The Smoke Alarm shall be tested upon completion of installation, and the client shall be instructed how to operate, test and maintain the Alarm.
- The client shall be instructed how to properly respond to an alarm signal.

## Written Instructions

The client shall be provided with the Smoke Alarm owner's manual.

### 3103 Carbon Monoxide (CO) Alarm

ASHRAE 62.2 (2013) requires the installation of one (1) CO alarm in dwellings that do not have combustion appliances.

Install the CO alarm in the hallway within 10ft of the bedroom doors, mounted to an interior wall, and 5ft off the floor. For dwellings with a combustion appliance, install CO alarms on every conditioned level of the home, in the area of the bedrooms (within 10ft of the bedroom doors, on an interior wall, and 5ft off the floor).

### 3104 ASHRAE 62.2 (2013)

Mechanical ventilation will be determined by the on-line tool, "RED Calc." Go to: <http://www.residentialenergydynamics.com/REDCalcFree/Tools/ASHRAE6222013>

#### RED CALC - ASHRAE 62.2-2013 Ventilation

Go to: [www.residentialenergydynamics.com/REDCalcFree/Tools/ASHRAE6222013.aspx](http://www.residentialenergydynamics.com/REDCalcFree/Tools/ASHRAE6222013.aspx)

New or existing construction	<input type="text" value="Existing"/>		
Use infiltration credit	<input type="text" value="Yes"/>		
Closest Weather station	<input type="text" value="United States"/>		
	<input type="text" value="South Carolina"/>		
Select a Weather station that is the nearest to the dwelling.	<input type="text" value="Select a Station"/>		
	Charleston International Airport Columbia Metropolitan Airport Florence Regional Airport Greenville Downtown Airport	Greer-Greenville-Spibg Airport Myrtle Beach Air Force Base North Myrtle Beach Grand Strand Airport Sumter Shaw Air Force Base	
Living area [ ft <sup>2</sup> ]	<input type="text"/>		
Number of occupants	<input type="text"/>		
Building Height	<input type="text"/>		
Measured leakage @ 50 Pa	<input type="text" value="CFM"/>	<input type="text"/>	
<input checked="" type="checkbox"/> Use Advanced Blower Door Inputs			
Blower door test type	<input type="text" value="Depressurization"/>		
Indoor temperature [ F ]	<input type="text"/>		
Outdoor temperature [ F ]	<input type="text"/>		
Altitude [ ft ]	<input type="text"/>		
Pressure exponent	<input type="text" value="0.65"/>		
Adjusted leakage @ 50 Pa [ 50Pa ]	<input type="text"/>		
<input checked="" type="checkbox"/> Use Local Ventilation Alternative Compliance			
Kitchen included <input checked="" type="checkbox"/>	# Baths included		
	Existing Flow	Openable Window	Deficit
Kitchen		<input checked="" type="checkbox"/>	
Bath #1		<input checked="" type="checkbox"/>	
Bath #2		<input checked="" type="checkbox"/>	
Total deficit [ CFM ] = <input type="text"/>			
Bldg Ventilation Results - automatic calc			
1	Effective annual avg infiltration rate		
2	Total required ventilation rate		
3	Alternative compliance supplement		
4	Infiltration credit		
5	Required mechanical ventilation rate <span style="color: red;">If the required mechanical ventilation rate is 15 or less, no ASHRAE fan required.</span>		
Whole-Bldg Ventilation Run-Time Solver			
Fan capacity [ CFM ] <input type="text"/>			
Fan run-time per hour [ min ] <input type="text"/>			
<input type="text"/> Enter CFM# for new exhaust fan - 80, 110, 130, etc.			





The replacement of only one refrigerator is allowed. Households which utilize more than one refrigerator and/or freezer shall be encouraged to eliminate additional units. Costs of disposal/recycling all units are allowable.

- The audit can be a NEAT/MHEA evaluation or by entering metered data into the audit.
- A minimum of 10% of the units evaluated will be subject to live metering to determine actual watt-hour consumption.
- Refrigerators assessed using data base evaluation must match the model number.
- Refrigerators assessed using labeled consumption evaluation must include age and door seal condition. The duration for metering is 2 hours or greater.

If it is determined that a defrost cycle has occurred during the metering interval, one of the following shall be required:

- The metering interval shall be extended to 24 hours.
- The data shall be discarded, reset the meter and begin the 2 hour interval again.

### **3403 REFRIGERATOR - DISPOSAL REQUIREMENTS:**

Disposal requirements will include, removing the existing appliance(s) identified for replacement from the client's home and certified destruction (including recapture of CFC's as required by section 608 of the "Clean Air Act", as amended by Final Rule, 40 CFR 82, May 14, 1993).

A Certificate of Disposal from the scrap yard/recycler shall be available for all appliances removed from service and a copy placed in the client/job file.

### **3500 DOMESTIC HOT WATER TANK (DHW)**

New water heaters may be installed in units on a case-by-case basis. Funds cannot be used to convert to an electric water heater from another fuel source. Water heaters shall be installed by a State of South Carolina licensed contractor in accordance with the requirements of the governing code. Once the unit has been installed, the contractor must place the information on the appliance, in plain view, certifying that the system has been properly installed in accordance with governing code requirements. The information shall indicate the date of installation and the name and phone number of the mechanical contractor.

Water heaters shall be thoroughly inspected to determine whether they shall be insulated using the following guidelines:

1. Tanks which leak or have leaking pipes shall not be insulated.
2. If manufacturer's directions/warning labels indicate insulation is not recommended, tank shall not be insulated.
3. An operable temperature/pressure relief valve must be mounted to the tank (within the top 6") with the discharge directed downward and terminating within 6" of floor. If not the tank shall not be insulated.
4. Combustion type water heaters must have their own exhaust vent directly to the chimney or outside properly installed with a minimum 1/4 inch/foot positive pitch; if not, the tank shall not be insulated.
5. Combustion type water heaters must have a cover plate attached, covering the burner opening; if not, the tank shall not be insulated.
6. Combustion type water heaters with a vent damper shall not be insulated.

## 3600 OTHER WEATHERIZATION ENERGY MEASURES

### 3601 LOW FLOW SHOWER HEAD:

Shower heads shall be examined for flow rate. Shower heads exceeding maximum two-and one-half gallons per minute at normal residential water pressures (20-40 psi) may be replaced with low flow shower heads. Replacement must be able to withstand temperatures of 160 degrees F. If multiple showerheads are installed, the total maximum is 2.5 GPM.

### 3602 DHW TANK INSULATION:

Water heaters shall be thoroughly inspected to determine whether they shall be insulated using the following guidelines:

1. Tanks which leak or have leaking pipes shall not be insulated.
2. If manufacturer's directions/warning labels indicate insulation is not recommended, tank shall not be insulated.
3. An operable temperature/pressure relief valve must be mounted to the tank (within the top 6") with the discharge directed downward and terminating within 6" of floor. If not, the tank shall not be insulated.
4. Combustion type water heaters must have their own exhaust vent directly to the chimney or outside properly installed with a minimum 1/4 inch/foot positive pitch; if not, the tank shall not be insulated.
5. Combustion type water heaters must have a cover plate attached and covering the burner opening.
6. If there is not an attached cover plate, the tank shall not be insulated.
7. Combustion type water heaters with a vent damper shall not be insulated.
  - The first 6' of inlet and outlet piping will be insulated in accordance with manufacturer specifications.
  - Pipe insulation must remain 3" from gas water heater vent.

### 3603 CLOCK SETBACK (SMART) THERMOSTAT:

Thermostat shall be clock-operated type designed to provide a minimum of one setback period per 24 hours. Thermostat shall be compatible with existing furnace system. All thermostats installed shall display current room temperature.

### 3604 INSTRUCTIONS TO CLIENT:

Clients shall be instructed on the setting and operation of new clock thermostats and the replacement of batteries for thermostats utilizing batteries.

### 3605 FURNACE/BOILER/SPACE HEATER TUNE-UP/REPAIR

Furnace, boiler, and space heater tune-up and repairs shall be conducted by licensed mechanical contractors. The need for a furnace and/or space heater tune-up shall be determined by the Assessor/Auditor.

- A tune-up involves a visual inspection, testing procedures, cleaning, and adjustments to improve the combustion and seasonal efficiency of the heating system.
- Repairs involve the replacement or reconstruction of defective or unsafe parts for the purpose of ensuring the safe operation of the heating system.
- Clean, tune, and evaluate HVAC costs may include cleaning, and should be charged as part of the assessment. Cleaning of the squirrel cage should be included in a tune-up. The squirrel cage should be removed to thoroughly clean it.

## 3700 HEALTH AND SAFETY

The health and safety of clients, weatherization crews, and contractors is of primary concern. Health and safety hazards specifically not to be abated under the South Carolina Weatherization Program shall include hazards presented by asbestos, radon, lead, mold and moisture, or toxic chemicals. Weatherization funds may be used for

the elimination of energy related health and safety hazards that are necessary before or because of the installation of weatherization materials.

### **3701 DHW TANK PRESSURE-RELIEF VALVE DISCHARGE PIPE:**

Water heaters must have a discharge pipe connected to the pressure relief valve and terminated to the outside.

- Discharge in a manner that does not cause personal injury or structural damage.
- Not terminate more than 6 inches above the ground.
- Discharge through an air gap located in the same room as the water heater.
- Per code, be constructed of either CPVC, PEX, or PE-RT.
- Not having a threaded connection at the end of the piping.

### **3702 HEALTH AND SAFETY PROCEDURE:**

Each home weatherized must be assessed to detect the existence of potential hazards to workers or clients. If unsafe conditions exist that would endanger the health and safety of the clients or weatherization workers, and those conditions cannot be corrected, no weatherization work may be started on that home.

The audit shall include, but is not limited to, a health and safety inspection and discussion with the client relative to the following:

- Gas leak testing
- CO Ambient Air
- CAZ Testing
- ZPD for an attached or "tuck-under" garage
- Evaluations of the duct system (e.g., return air properly ducted and air-tight).
- A complete evaluation of existing and potential moisture problems using Form 102.
- A review for the presence of hazardous substances (asbestos, lead paint, volatile organic compounds) in the home.
- A review of the need and/or existence of smoke detectors.
- Evaluate clothes dryers for proper venting.
- A review for structural safety.
- A review for means of egress.
- A review for electrical hazards.
- A review for fire hazards.

To ensure that the weatherization work that was completed does not create potential problems, the inspection shall include a review of the energy audit to ascertain all installed ECM's ranked and were installed according to the SWS and SC Field Guide, Manual J, and Manual D, a health and safety inspection and discussion with the client relative to the following:

- Gas leak testing.
- CO Ambient Air.
- CAZ Testing.
- ZPD for an attached or "tuck-under" garage
- A final blower door test after all work has been completed.
- An evaluation of the moisture conditions in the dwelling.
- A review of all weatherization work completed with respect to health and safety (e.g., structural damage as a result of weatherization work).

If the inspection indicates that weatherization work resulted in a health and safety problem, the agency must correct the problem prior to reporting the unit as a completion.

### 3703 REQUIRED DOCUMENTATION

The audit shall include health and safety factors.

## 3800 HEALTH AND SAFETY ASSESSMENT REQUIREMENTS

Health and safety assessment requirements are contained in this section.

### 3801 ASBESTOS - DESCRIPTION:

A fibrous, non-combustible mineral. Removal of siding is allowed to perform energy conservation measures. All precautions must be taken not to damage siding. Asbestos siding should never be cut or drilled. In the case of asbestos siding, it is recommended to insulate through the home interior where possible. Known asbestos containing building components shall not be handled during the course of weatherization work in a way which would cause the transmission of asbestos dust into the air. Inspect the exterior wall surface and subsurface for asbestos prior to drilling or cutting. The auditor must document any asbestos issues on Form 1 - Client Interview and/or Form 107 - Deferral. Newly hired Field Supervisors, Assessors are required to take the OSHA Construction 10 hour course which includes asbestos training.

### 3802 CARBON MONOXIDE (CO)

An odorless/colorless gas produced as a byproduct of an incomplete combustion process. CO is a direct and cumulative poison. When combined with blood hemoglobin, CO replaces oxygen in the blood until it completely overcomes the body. Low level CO poisoning symptoms include headaches, confusion, dizziness, nausea, vomiting, convulsions, sleepiness, stinging eyes, and loss of muscular control. Death from CO poisoning occurs suddenly. A victim inhaling a toxic concentration of the gas may become helpless before realizing that danger exists. Effects can vary significantly based on age, sex, weight, and overall state of health. Children, the elderly and the infirm may be seriously affected by even low levels of CO depending on the concentration and exposure period.

### 3803 CARBON MONOXIDE TESTING:

Carbon monoxide testing is required.

### 3804 INDOOR AIR QUALITY:

Pre-inspection procedures shall include a visual review and discussion with the client relative to potential indoor air quality (IAQ) problems, such as:

- Combustion by-products/carbon monoxide.
- Unstable lead-based paint.
- Friable asbestos.

In addition to asbestos, carbon monoxide, and lead based paint which are addressed in this section, other IAQ concerns may include:

- Volatile Organic Compounds (VOC): Cleaning fluids, paints, solvents, herbicides, pesticides, and formaldehyde. Known to be potential irritants to lungs, eyes, and skin. Some VOCs may be carcinogenic. VOCs are frequently stored under sinks, in closets, and basements. Formaldehyde may be found in a variety of building components including plywood, carpeting, and particle boards. All VOCs must be removed. **Note:** Storage of VOCs in basements are not allowed.
- Airborne Particulate Matter: Primarily tobacco smoke or smoke from improperly vented wood stoves. It is known to cause lung cancer. Excessive air-tightening can increase levels of carcinogenic by-products in dwellings.

- **Fiberglass:** Fibrous glass insulation material. Known to be an irritant to lungs, eyes and skin. Most preliminary research indicates no long-term negative health effects resulting from exposure to high levels of fiberglass, but some studies have indicated that some types of finely chopped blown-in fiberglass may be a potential carcinogen. Exposed fiberglass shall not be left in occupied areas of dwellings. Workers are advised to wear properly rated respirators and protective clothing when working with or around fiberglass.
- **Raw Sewage/Methane Gas:** Workers must take precautions to avoid direct contact with raw sewage or other unsanitary conditions. Clients must be informed of existing conditions and referred to available resources for assistance.

### **3805 MOLD AND MOISTURE ASSESSMENT**

The Weatherization Assistance Program is not a mold remediation program. The use of DOE funds for removal of mold and other related biological substances is not an allowable weatherization expense. DOE funds should not be used to test, abate, remediate, purchase insurance, or alleviate existing mold conditions identified during the audit, the work performance period, or the quality control inspection.

Subgrantees must measure indoor humidity levels and potential sources for excess moisture. Identified problems and sources are documented on the Moisture Assessment Findings form that is signed by the local subgrantee, client, and/or landlord. The South Carolina Mold and Moisture Assessment Form 102 lists moisture conditions that exist in the home at the time of initial audit before any weatherization measures were installed. The conditions must also be confirmed by the crew/contractor prior to performing their work. This form must be present in every file.

Solutions for mold remediation and educational talking points are discussed with the homeowner and/or occupants to determine roles in creation of problems and/or mitigation. Occupants are given a copy of the Environmental Protection Agency (EPA) brochure, "A Brief Guide to Mold, Moisture, and Your Home" as part of the client education process. A printable version of the guide is available on the EPA website. Go to: <https://www.epa.gov/mold/printable-version-brief-guide-mold-moisture-and-your-home>.

### **3806 LEAD - DESCRIPTION**

A metal contained in paints and various other substances. Lead in paint was discontinued in 1978 for residential use.

### **3807 HEALTH/SAFETY CONCERNS:**

Ingestion or absorption of lead into the blood stream is a serious health hazard causing brain damage over a period of time. This can be a particularly serious problem with small children, who may ingest paint chips or flakes or dust contaminated with lead products. Serious learning disabilities can result from excessive lead levels in the bloodstream. Workers can be contaminated in the same way as children, but are most likely to be exposed by breathing dust created by sanding or planing surfaces that contain lead based paints.

Lead paint is the primary source of lead in a home. Contamination occurs when lead paint is disturbed by sanding, chipping, or flaking.

### **3808 PROCEDURES:**

Lead paint removal is not an allowable activity under the Weatherization Assistance Program. To minimize risks to clients and weatherization personnel:

- Provide clients and workers with Renovate Right Brochure. (EPA/HUD available at [www.epa.gov/lead](http://www.epa.gov/lead)).
- All weatherization contractors, crew persons, and pre/post-inspectors are to be trained and certified in Lead Safe Weatherization (LSW).

- All local weatherization operator staff, inspectors, contractors, and crews, must be in compliance with:
  - EPA's LRRPP Rule requirements.
  - All Federal, state, and local regulations.
  - OSHA rules for worker safety.
  - All State and local rules for waste disposal.
- Do not disturb lead based paint particularly in dwellings with small children.
- Staff and contractors shall assume that any paint on windows and doors contains lead, unless it has been verified otherwise.
- If paint chips/dust results from weatherization work, the area shall be cleaned in accordance with LSW Practices.

### **Firm Responsibilities**

Firms performing renovations must ensure that:

1. All individuals performing activities that disturb painted surfaces on behalf of the firm are either certified renovators or have been trained by a certified renovator;
2. A certified renovator is assigned to each renovation and performs all of the certified renovator responsibilities;
3. All renovations performed by the firm are performed in accordance with the work practice standards of the Lead-Based Paint Renovation, Repair, and Painting Program;
4. Pre-renovation education requirements of the Lead-Based Paint Renovation, Repair, and Painting Program are performed, and
5. The program's recordkeeping requirements are met.

### **Renovator Certification**

To become a certified renovator an individual must successfully complete an eight-hour initial renovator training course offered by an accredited training provider (training providers are accredited by EPA, or by an authorized state or tribal program). The course completion certificate serves as proof of certification.

Renovators at either the subgrantee or the subgrantee's contractor must adhere to the following:

1. Must use a test kit acceptable to EPA, when requested by the party contracting for renovation services, to determine whether components to be affected by the renovation contain lead-based paint.
2. Must provide on-the-job training to workers on the work practices they will be using in performing their assigned tasks.
3. Must be physically present at the work site when warning signs are posted, while the work-area containment is being established, and while the work area cleaning is performed.
4. Must regularly direct work being performed by other individuals to ensure that the work practices are being followed, including maintaining the integrity of the containment barriers and ensuring that dust or debris does not spread beyond the work area.
5. Must be available, either onsite or by telephone, at all times renovations are being conducted.
6. Must perform project cleaning verification.
7. Must have with them at the work site copies of their initial course completion certificate and their most recent refresher course completion certificate.
8. Must prepare required records.

### **Work Practice Requirements:**

1. Renovations must be performed by certified firms using certified renovators;
2. Firms must post signs clearly defining the work area and warning occupants and other persons not involved in renovation activities to remain outside of the work area. These signs should be in the language of the occupants;

3. Prior to the renovation, the firm must contain the work area so that no dust or debris leaves the work area while the renovation is being performed;

### **3809 UNSAFE CONDITIONS:**

If unsafe conditions exist, it shall be documented on Form 107 - Deferral and provided to the client, /landlord, /property owner. A copy of the notice shall be maintained in the client file.

### **3810 WIRING - HEALTH/SAFETY CONCERNS:**

Minor electrical repairs are allowed with DOE incidental repairs funds where the health and safety of the client is at risk.

### **3811 TO MINIMIZE RISKS:**

- Auditors will conduct a visual inspection for electrical issues. They will also conduct voltage drop and voltage detection tests when needed.
- Auditors will inspect for the presence and condition of knob and tube wiring and check for alterations that might create an electrical hazard. Voltage drop and voltage detection tests are allowed.
- Auditors identify any knob and tube wiring found in the dwelling and test if to see if it is live. If it is spliced into conventional circuitry, auditors note the breakers or fuses controlling the circuit. Building performance retrofits must conform to NEC or local code.
- Workers must demonstrate caution when working around wiring.
- Verify proper wiring connections and proper fusing.
- Verify proper blocking out of insulation around heat-producing sources.

### **3812 INSULATING IN AREAS WITH WIRING:**

Inspection prior to installing insulation is critical to insure there are no potential hazards relative to the wiring.

- If knob and tube wiring exists in wall cavities to be insulated, it must be in good condition.
- Live knob and tube wiring can never be covered or surrounded by insulation as a result of any weatherization measure. Boxing of knob and tube wiring prior to insulation is acceptable.
- Breakers or "S" type fuses must be installed in the fuse box (fuses appropriate to the wire size).
- OTHERWISE SUCH AREAS SHALL NOT BE INSULATED AND THE FILE PROPERLY DOCUMENTED

Insulating over knob and tube wiring is prohibited in some areas by code. Any evidence of problems with wiring in the attic shall be inspected and corrected. If the correction is completed using WAP funding, the work must be completed by a licensed electrician.

## **3900 TESTING**

### **3901 BLOWER DOOR:**

The blower door shall be used at the audit and inspection as a diagnostic tool to measure the air tightness of buildings and to help locate air leakage sites. All dwellings weatherized require blower door testing during the assessment and when the dwelling is completed. The final blower door result must be entered into RedCalc to determine the dwelling unit ventilation run-time calculation. Results of blower door testing shall be documented on Form 500 - QC Final Inspection.



### 3902 CARBON MONOXIDE (CO) TESTING:

All dwellings weatherized shall be tested for CO levels during pre-inspections and post-inspections. Tests shall include ambient air checks. Levels exceeding 9 parts per million (ppm) shall be documented on the IWC and corrective action recommended. .

### 3903 COMBUSTION APPLIANCE INSPECTING TESTING - PRE-INSPECTION & POST-INSPECTION REQUIREMENTS:

All combustion appliances shall be inspected during pre-inspection and post-inspection by a Certified Weatherization Inspector and/or tested by a licensed mechanical contractor. Related sections of the IWC shall be completed. There shall be no disassembly of the mechanical components of combustion appliances, unless completed by a licensed mechanical contractor.

The Combustion Appliance Zone procedure to check for vent stack spillage shall be followed and documented on the Diagnostic Testing form.

Combustion appliances may be tested under the worst case depressurization of the Combustion Appliance Zone (CAZ). The Worst Case Depressurization of the Combustion Appliance Zone testing, when performed, shall be documented on the IWC.

### 4000 DOCUMENTATION REQUIREMENTS:

Refer to Form 1 - Client File Checklist for required forms and documents to be in the client file folder.

<b>4100 WEATHERIZATION PROCESS</b>
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### 4101 Client Eligibility - Weatherization Priority of Service

DBA Wx FACSPRO is required to be used to determine the priority of service. The client with the highest points, will be served first. Priority of service points are calculated as follows:

Points	
20	Elderly - Applicant age 60 years old and older
20	Disabled - Applicant that is Disabled
20	Children - Household with children 17 years old and younger
20	High Energy Burden Household - At least 20% of the household income is utilized to pay for energy usage.
20	High Energy User - LIHEAP eligible household (Household income is 150% or less poverty income)

### 4102 PROGRAM INCOME

Program income is defined and subject to the specific requirements provided in the DOE Financial Assistance Rule, 2 CFR 200.307. DOE considers program income as funds earned by Grantees and/or Subgrantees from non-Federal sources during the course of performing DOE WAP activities. The income from these activities must be used to complete additional dwelling units in accordance with DOE rules. It must be treated as an addition to program funds and is subject to the same rules as appropriated funds. Property owner (i.e. landlord) contributions and leveraged resources (i.e., or Grantee funds) are NOT considered to be "program income" for the purposes of the WAP. Program income does not include rebates, credits, discounts, etc., or interest earned on any of them.

### Program income shall be:

- Retained by the subgrantee.
- Added to funds committed to the grant
- Used to further eligible program activities.
- Accounted for separately.

- Reported to the appropriate grant as it is earned and as it is expended on monthly fiscal reports.

### **Interest earned on the advance of DOE funds is not program income.**

According to 2CFR200.305(9), Funds advanced from OEO to Subgrantees must be placed in an interest bearing account. The first \$500.00 of interest earned on federal funds per Subgrantee per year (**not per grant**) may be retained to offset administrative costs. Any additional interest earned must be returned to the treasury via OEO.

### **4103 Monthly Reporting**

All monthly reports will be generated through DBA WxFACSPRO.

### **4104 Insurance**

Subgrantees are reminded that all work performed must be covered by liability insurance. Subgrantees and their contractors must have sufficient liability coverage for DOE funded activities. Liability insurance can be charged to the liability line item in the budget, which was created to ensure that such costs would never have to be charged to the administrative cost category. All Subgrantees must secure appropriate insurance coverage for weatherization personnel.

Subgrantees that employ contractor labor to perform Weatherization services must ensure that each private contractor is adequately insured as well. All insurance must be procured by the competitive bid process and must include these types:

### **4105 Incidental (Necessary) Repairs**

Incidental repairs are not structural repairs to the building. They are repairs associated with the performance or preservation of a measure or measures. They are always cost-tested with the measure they are designed to preserve or aid in effective performance. They are not general heat waste measures.

Incidental repairs include structural repairs to the building envelope, and general heat waste measures included in the energy audit as itemized costs. Incidental repairs are included in the per unit cost limitation and must be cost justified with the SIR for the package of measures.

### **4106 Contracting**

In selecting subcontractors, subgrantees must adequately advertise for subcontractors to perform weatherization services. To begin this process, subgrantees may advertise to Request for Qualified Vendors on the South Carolina Business Opportunities website.

### **4107 State Historic Preservation Office**

Prior to the service approval and expenditure of federal funds to weatherize any structure or site, Subgrantees are required to obtain/verify the year built for all homes. The verification method shall be done through the county assessor's office or on-line. A copy of the record with the year the site-built dwelling was built shall be filed in the client file folder. Note: There are several counties in South Carolina that do not have an on-line look-up website. Undertakings that involve properties greater than fifty (50) years old and are not listed below, shall complete a Project Review Form 106 and submit to SHPO for approval to weatherize the dwelling.

### **WAP Undertakings Exempt from Section 106 Review**

All undertakings will be done in accordance with applicable local building codes or the International Building Code, where applicable. In accordance with 36 CFR 800.3(a)(1), the following undertakings have been determined to have no potential to cause effects on historic properties:

## A. Exterior Work

1. Air sealing of the building shell, including caulking, weather-stripping, and other air infiltration control measures on windows and doors, and installing thresholds in a manner that does not harm or obscure historic windows or trim.
2. Thermal insulation, such as non-toxic fiberglass and foil wrapped, in walls, floors, ceilings, attics, and foundations in a manner that does not harm or damage historic fabric.
3. Blown in wall insulation where no holes are drilled through exterior siding, or where holes have no permanent visible alteration to the structure.
4. Removable film on windows (if the film is transparent), solar screens, or window louvers, in a manner that does not harm or obscure historic windows or trim.
5. Repair of minor roof and wall leaks prior to insulating attics or walls, provided repairs closely resemble existing surface composite.

## B. Interior Work

### 1. Energy efficiency work within the building shell:

- a. Thermal insulation in walls, floors, ceilings, attics, crawl spaces, ducts and foundations.
- b. Plumbing work, including installation of water heaters in areas that are not primary interior spaces (entrance halls, parlors, courtrooms, corridors, etc.)
- c. Electrical work.
- d. Sealing air leaks using weatherstripping, door sweeps, and caulk and sealing major air leaks associated with bypasses, ducts, air conditioning units, etc.
- e. Repair or replace water heater tanks and water heating pipes.
- h. Install insulation on water heater tanks and water heating pipes.

### 2. Work on heating and cooling systems (excluding changes to primary interior spaces (entrance halls, parlors, courtrooms, corridors, etc.):

- a. Clean, tune, repair or replace heating systems, including furnaces, oilers, heat pumps, vented space heaters, and wood stoves.
- b. Clean, tune, repair or replace cooling systems, including central air conditioners, window air conditioners, heat pumps, and evaporative coolers.
- c. Install insulation on ducts and heating pipes.
- d. Conduct other efficiency improvements on heating and cooling systems, including replacing standing pilot lights with electronic ignition devices and installing vent dampers.
- e. Modify duct and pipe systems so heating and cooling systems operate efficiently and effectively, including adding return ducts, replace diffusers and registers, replace air filters, install thermostatic radiator controls on steam and hot water heating systems.
- f. Install programmable thermostats, outdoor reset controls, UL listed energy management systems or building automation systems and other HVAC control systems.

### 3. Energy efficiency work affecting the electric base load of the property (excluding historic light fixtures in primary interior spaces (entrance halls, parlors, courtrooms, corridors, etc.):

- a. Convert incandescent lighting to fluorescent.
- b. Replace refrigerators.

### 4. Health and Safety measures:

- a. Installing fire, smoke or carbon monoxide detectors/alarms.

- b. Repair or replace vent systems on fossil-fuel-fired heating systems and water heaters to ensure that combustion gasses draft safely to outside.
- c. Install mechanical ventilation, in a manner not visible from the public right of way, to ensure adequate indoor air quality if house is air-sealed to building tightness limit.

#### **4108 Appeal and Fair Hearings**

Constituents who assert they have been unfairly treated and/or those denied access to program assistance services are entitled to be notified/ informed in writing clarifying the reason for denial.

Each subgrantee must ensure its obligation to educate and make known the Appeal and Fair Hearing Procedures. These procedures must be visual in each office and explained to all applicants for WAP. Subgrantees must educate and inform each applicant of the Appeal and Fair Administrative Hearing Procedures. A copy of these procedures must be posted in a conspicuous place in each office and explained to all applicants applying for the WAP.

#### **4109 System for Award Management (SAM)**

Subgrantees are required to have the weatherization subcontractors complete the Small Business Administration (SBA) Form 1623, Certification Regarding Debarment, Suspension, and Other Responsibility Matters Primary Covered Transactions.

Subgrantees are required to verify the subcontractors having any active exclusion through the SAM. A copy of the SAM result must be filed in the subcontractor's file folder. Go to <http://sam.gov>. For additional information, see Weatherization Memorandum W 07-15.

#### **4110 INSULATION REQUIREMENTS - CERTIFICATE OF INSULATION**

Whenever an area is addressed/completed with thermal insulation (attic, wall, or floor insulation), contractors/crews are required to complete in triplicate Form 200 - Insulation Certificate.

This form shall contain the following information:

- Address of the building insulated
- Date of completion of the installation
- Insulation type (e.g. cellulose, fiberglass, rigid foam)
- Insulation manufacturer
- When cellulose insulation is used, data from the bag specifying plant, batch number, date, and/or any other information needed to identify the batch
- Location and dimension (in square feet) of each space which is insulated
- The amount of insulation which was installed in each of the locations, given in the units in which the material is most commonly available (e.g. bags, rolls, sheets)
- The R-value installed in each of the identified locations; and
- A statement signed by an authorized individual, certifying that the insulation was installed at the residence in conformance with FTC Regulation 16 CFR 460.17.

One copy of this form goes to the client/homeowner, another is permanently affixed to the house in or at the electric service panel and the third copy goes to the agency client/job file.

#### **4111 TRAINING AND TECHNICAL ASSISTANCE (T&TA)**

T&TA funds may be used to train subgrantee contractors. In making the determination to pay for contractor training, subgrantees should secure a retention agreement in exchange for training. The contract agreement should stipulate that contractors will work in the Program, at a minimum, for a specific amount of time and should

align with the cost of the T&TA provided. Examples of contractor/agency agreements can be found at [www.waptac.org](http://www.waptac.org).

Training and technical assistance will be provided through on-site visits, statewide conferences, and out-of-state weatherization training centers. Any out-of-state training meetings or conferences must receive prior approval from OEO.

### **Routine Technical Assistance**

Technical assistance covering any programmatic aspect of operations can be provided during monitoring visits by the monitoring staff or at any time the subgrantee encounters a problem. If major problems are identified during the monitoring field visit, more extensive technical assistance will be scheduled in the immediate future following the monitoring visit.