# Low Rise Multifamily Priority List

## Guide and Documents

**Included Documents:**

- LRMF Priority List Guide
- Form A - LRMF PL - Checklist SOM
- Form H - LRMF Health & Safety Checklist
- Form C - LRMF Combustion Safety Checklist

# Table of Contents

# 1.0 Overview

For multi-family weatherization jobs using a priority list, the file must include a completed and approved Low Rise Multi-Family Checklist Zone 3 for each building. The audit must include all work including weatherization work performed in common areas like hallways, attics, basements, etc. The building must be 3 stories or less above grade, contain 5 or more dwelling units, and have a wood frame structure. Incidental Repair Measure (IRM) costs funded with DOE WAP funds shall not exceed 10% of the project's total Energy Conservation Measure ECM package.

The client/building files should clearly indicate the structure is a multi-family building and must be cross-referenced with all other units weatherized in the building. Additionally, all client files must be clearly cross-referenced so that any reviewer can easily determine building eligibility under the 66 percent (50 percent for duplexes and four-unit buildings) rule, or any other aspect of the weatherization work to that multi-family building. The files shall clearly indicate weatherization measures to be completed

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

# 2.0 Initial Assessment Summary

If there are multiple buildings of similar size and characteristics, the previous audit maybe utilized within a twelve-month period from when the original work order was created. The auditor must also communicate with the building owner to ensure no significant differences exist between buildings which would alter the scope of work. Lastly, the auditor must sample at least 10% of all units in the project, with no fewer than three units of each floor plan, and no fewer than five units total. If differences exist between buildings which would impact the priority list scope of work, a new Priority List must be completed for each building type. In addition, 100% of units must have a health and safety checklist and the combustion safety checklist (Forms C & H) completed.

The audit is the initial assessment of the home and interaction with the client. The energy audit must include at least the following activities:

Upon entry, ambient carbon monoxide and combustible gases are tested for in the home/building.

Determinations are made that the building will not be a deferral and weatherization services can be provided per [CSPM 609].

Required photographs for each weatherization unit should be taken are as follows:

- ☐ Complete exterior of all sides of building(s).
- ☐ Foundation area including measurement of sill boxes, joist depth, insulation depth, and air sealing locations.
- ☐ Attic area including measurement of joist depth, insulation depth, and air sealing locations.
- ☐ Wall cavity visual inspection of cavity depth, insulation depth, and air sealing locations. (Thermal images when applicable)
- ☐ All accessible ducts outside the thermal boundary including areas to repair, seal, and insulate.
- ☐ All diagnostic testing results (CO, CAZ, SSE, CFM, etc.).
- ☐ Photos of all air sealing prior to insulating
- ☐ Data tags (or lack thereof) for all heating/cooling systems, refrigerators, and water heaters.
- ☐ Flue/chimney for all vented combustion appliances.
- ☐ All H&S related issues. (pre and post)
- ☐ All Incidental Repair Measures (pre and post)
- ☐ Lighting (pre and post) do we want all pics
- ☐ Optional measures: Water heater tank wrap, faucet aerators, pipe wrap insulation, refrigerators, HVAC replacement (pre and post)

A thorough inspection of the exterior which includes everything from building components, condition, orientation, measurements, insulation levels, and H&S issues to grading and moisture.

A thorough inspection of the attic which includes everything from building components, measurements, condition, air leakage areas, insulation levels, and H&S concerns to moisture issues and ventilation requirements.

A thorough inspection of the basement/crawlspace, which includes everything from building components, measurements, condition, air leakage areas, insulation levels, and H&S concerns to moisture issues.

Any H&S issues are documented: Mold/moisture, dryer/exhaust fan terminations, plumbing problems, electrical problems, asbestos, etc.

Lead issues are documented, and a determination will be made regarding lead and the need to use lead-safe work practices.

Inspection of the combustion appliances is performed; reference the current version of the BPI 1200 standard. This includes being able to check for gas leaks, electrical safety, combustion air requirements, vent system visual inspection, duct system visual inspection, and visual inspection of cleanliness.

Combustion appliance zone (CAZ) pressure diagnostics (Worst-Case depressurization of the CAZ) and operational testing are required (establish flow in the vent under worst-case conditions, spillage, CO, and temperature rise on a forced air system)

Blower door testing is not required, however it is highly encouraged, when possible, for the following, if appropriate:

- to ensure leakage areas (specifically high and low),
- making sure zones that can be isolated are investigated (sections of the home - basements), and
- making sure additional blower door readings are obtained for pressure diagnostic purposes.

An evaluation for asbestos should be done prior to any blower door testing. Upon identification of friable Asbestos Containing Material (ACM) follow section 3.6 under Health and Safety Assessment.  If a blower door cannot be done, documentation must be uploaded as to why it could not be conducted

Pressure diagnostics are performed when applicable and evaluation of the results assist in work scope development:

- attics,
- basements,

- crawls,
- building sections where thermal and pressure boundary alignment are questioned (attached porches, bulkheads, etc.),
- attached garages,
- pressure pan testing on ducts as appropriate, and
- interior room and main body pressures (done with furnace fan only).

Infrared camera used as appropriate (specifically in combination with blower door testing).

Existing exhaust fans are measured for flow and other data gathered to calculate ASHRAE ventilation requirements.

The Energy Auditor should work with the Wx Manager for the CAA to identify when and how client education will be provided. At all parts of the project, Auditors should communicate with clients what to expect for next steps. Depending on the project, communication to the clients and property owner may be coordinated with the Weatherization Program Manager.

# 3.0 Health and Safety Assessment

Form H -LRMF Dwelling Unit Health & Safety Checklist must be completed for every client/unit in the dwelling and uploaded in SharePoint or as directed by BCAEO.

To safeguard the lives and well-being of both subgrantee employees and weatherization clients, auditors are required to conduct a health and safety (H&S) assessment during the initial home audit before any weatherization work can begin. Identified H&S issues must be documented on Form H and corrected before work proceeds if such repairs are cost-effective and feasible. Where problems are beyond the scope of the program, the property owner and the client must be notified of the problem(s) in writing and an explanation of the deferral process must be discussed and documented.  CSPM 614 will be followed for all facets of the Priority List implementation and must meet the current version of the DOE approved H&S plan.

Health and Safety (H&S) (CSPM 614) funds may be used when the elimination of hazards is necessary before, or as a result of, the installation of weatherization material; and Health and Safety spending is limited to 50% of the total job cost, and the limit is reasonable in light of the primary energy conservation purpose of the Weatherization Assistance Program. Health & Safety measures are billed to their own line item.

Minor Repair maximums for H&S upgrades will be based on the number of units x maximum level in the Health and Safety Plan. IE: For a 10-unit building, the maximum roof repair limit would be 10 x $750 = $7,500. Agencies will need to balance H&S costs for this project within the overall program budget.

Reporting of Emergency Situation Requirements: Reporting the emergency is not an indication for action to be taken by the State's Weatherization Office, it is just a reporting requirement to track emergency situations. Agencies must submit an email to the MDHHS-BCAEO@michigan.gov within 24 hours to report the Health and Safety issues identified. The email should include the job number, the reason for the issue, and the remedy of the life-threatening situation. In addition, please provide the timeline and people involved in the response taken in the email. Full documentation on the issues identified, response taken with the timeline, results of response action, and a notification email to the BCAEO.

# 4.0 Combustion Appliance Assessment

Form C- LRMF combustion Safety Checklist must be completed for every client/unit and uploaded into the main project folder of SharePoint or as directed by BCAEO.

For Low Rise Multi-Family projects, agencies are encouraged to identify projects that are good candidates for using a priority list. This includes buildings that have individual heating systems for each unit. This allows weatherization to evaluate and potentially replace the heating system using the priority list, as well as completing CAZ testing.

For buildings with a central heating system, agencies must work with BCAEO to determine if a priority list is a good fit. For these projects:

A. The heating system would not need to be replaced – CAZ testing would still be required for Health and Safety. In this case, the agency would need to contract with an engineering firm or mechanical contractor to complete required health and safety testing. These readings would be used for monitoring purposes

B. The heating system would need to be replaced – The agency must communicate with BCAEO to identify funding strategies to address the heating system. This must include identifying a source of funding (landlord, utility, other funds) that will cover the replacement of the system as well as all potential incidental repairs.

Additionally, CAZ testing must be completed by a mechanical contractor or engineering firm.

In either case, CAZ testing must be completed after all weatherization work has been completed to ensure that weatherization work and changes to the heating system does not cause any combustion concerns.

For buildings that have a central heating system, using the priority list may not be the best fit. In these cases, the agency can explore using an auditing software to complete the project or pass the project to the statewide multi-family provider (when identified) to complete the project.

**Carbon Monoxide (CO) Alarms**

Carbon Monoxide (CO) alarms shall be installed in each dwelling unit in compliance with NFPA 720. Carbon monoxide alarms shall be installed by the Energy Auditor during the audit in a dwelling under the following circumstances:

- Whenever a local agency must defer work and the dwelling unit contains an unsafe combustion appliance
- A combustion appliance is emitting unsafe levels of CO that cannot be immediately remedied
- A combustion appliance has minimal draft and/or spillage and no CO is being produced
- The dwelling contains a fireplace or wood-burning stove that draws combustion air from inside the dwelling.
- CO alarms must be installed where alarms are not present or are inoperable.

Where solid fuel-burning equipment is present, fire extinguishers may be provided as an allowable health and safety measure.

Ambient Air Monitoring for CO: Michigan requires CO monitoring during combustion testing to ensure that CO in the combustion appliance zone (CAZ) doesn’t exceed dangerous levels.

If ambient CO levels in the CAZ reaches 70 ppm or greater:
- Terminate the inspection,
- Notify the homeowner/occupant of the need for all building occupants to evacuate the building, then
- Leave the building and the appropriate emergency services shall be notified from outside the home.

If ambient CO levels in the CAZ reaches 36 ppm to 69 ppm:

- Advise the homeowner/occupant that elevated levels of ambient CO have been detected,
- Open windows and doors,
- Recommend that all possible sources of CO be turned off immediately, then
- Where it appears that the source of CO is a permanently installed appliance, recommend that the appliance be turned off and advise homeowner/occupant to contact a qualified professional.

If ambient CO levels in the CAZ reaches 9 ppm to 35 ppm:

- Advise the homeowner/occupant that CO has been detected,
- Recommend that all possible sources of CO be checked and windows and doors opened, then
- Where it appears that the source of CO is a permanently installed appliance, advise the homeowner/occupant to contact a qualified professional.

Refer to the Michigan Field Guide for Ambient CO levels.

- Examine appliances for signs of damage, misuse, improper repairs, and lack of maintenance.
- Inspection of combustion venting systems for damage, leaks, disconnections, inadequate slope, and other safety hazards.
- Gas ovens can release CO, natural gas, or propane into a kitchen. Test the burners for safe combustion with these steps and do the recommended improvements.
- Test for gas leaks in the gas piping in and around the range and oven and seal the leaks.
- Turn the oven burner and then range burners to high one-by-one. Inspect the flames and test them for CO. For the oven burner test at its outlet. For range burners, hold the test probe approximately 8 inches above the flame.
- After 10 minutes, if the CO reading for the oven exceeds 225 ppm or any of the range top burners exceeds 100 ppm, recommend the client have the unit serviced.
- DOE funds cannot be used to replace ranges.
    - Burner orifices can clog. Clean dirty orifices with a multi-tool designed for cleaning various sized ori-fices.
- Adjust the burner’s air shutters to stabilize and harden the flame and reduce yellow tipping, which should also reduce the CO concentration.

Assess solid fuel-fired appliances to ensure safe installation before weatherization activities take place. Repair or removal is an allowed H&S measure for primary and secondary solid fuel-fired heating appliances. Replacement is allowed for primary solid fuel heating appliances, but replacement is not allowed for secondary heating appliances. Repair of flues and proper installation (e.g. protection of combustibles), is required for both primary and secondary solid fuel heating appliances. Install replacement primary heaters and/or flues according to applicable codes, standards and manufacturer's instructions. Provide adequate combustion air.

Inspection/Evaluation: Assessing solid fuel-fired appliances involves inspecting the venting/chimney and the overall installation to ensure it adheres to the applicable code: NFPA 211 or other as determined by the authority having jurisdiction. Appliances should be inspected pre- and post-weatherization.

**Smoke Detectors and Alarms**

Smoke detectors are required as a health and safety measure. Smoke alarms may be installed where alarms are not present/ inoperable.

Smoke detectors, if battery operated shall be sealed, non-replaceable, 10-year batteries, installed in accordance with the manufacturer's recommendations, following state and local code requirements. New batteries may be installed in existing-working smoke detectors.

When installing hardwired smoke alarms, it will be listed and labeled in accordance with UL 217 and installed in accordance with the IRC or as required by the authority having jurisdiction.

**Unvented Space Heaters**

Unvented space heaters include ventless gas fireplaces and gas logs installed in fireplaces previously designed for wood-burning or coal-burning. The unvented space heaters and fireplaces create indoor air pollution because they deliver all their com-bustion byproducts to the indoors. Unvented space heaters aren't safe. Replace them with vented space heaters or electric space heaters if at all possible. DOE forbids unvented space heaters as primary heating units in weatherized homes. However, unvented space heaters may be used as secondary heaters, under these requirements and the requirements outlined in the Michigan State Plan:

- The heater must conform to the safety standards of ANSI Z21.11.2.
- The heater must have an input rating of less than 40,000 BTUH.
- If located in a bedroom, the heater must have an input rating of 10,000 BTUH or less.
- If located in a bathroom, the heater must have an input rating of 6000 BTUH or less.
- The heater must be equipped with an oxygen-depletion sensing shut-off system.
- The room containing the heater must have adequate combustion air.
- CO production from unvented space heaters shall not exceed 200 PPM when measured on an air-free basis.
- The home must have adequate ventilation
    - See "ASHRAE Standard 62.2–2019 Ventilation".

**Table 1: CO Thresholds for Fossil Fuel-Fired Combustion Appliances (from ANSI/BPI-1200, Section 7.95)**

| CO Thresholds for Fossil-Fuel Fired Combustion Appliances | |
|---|---|
| **Appliance** | **Threshold Limit** |
| Central Furnace (all categories) | 400 ppm air free [4] |
| Boiler | 400 ppm air free |
| Floor Furnace | 400 ppm air free |
| Gravity Furnace | 400 ppm air free |
| Wall Furnace (BIV) | 200 ppm air free |
| Wall Furnace (Direct Vent) | 400 ppm air free |
| Vented Room Heater | 200 ppm air free |
| Unvented Room Heater | 200 ppm air free |
| Water Heater | 200 ppm air free |
| Oven/Broiler | 225 ppm as measured |
| Clothes Dryer | 400 ppm air free |
| Refrigerator | 25 ppm as measured |
| Gas Log (gas fireplace) | 25 ppm as measured in vent |
| Gas Log (installed in wood burning fireplace) | 400 ppm air free in firebox |

# 5.0 Mandatory Energy Conservation Measures

Only items labeled as “Mandatory” may be installed in common spaces regardless of who pays the utility costs for these spaces. Common areas not physically connected to the qualified building, even if existing only for the use of the tenants of the qualified building, may not receive services paid for with WAP funding.

**Mandatory lighting**

Light Emitting Diode (LED) lighting replacement of all existing screw-based incandescent, halogen, or compact fluorescent lighting used for a minimum of one hour per day.

The following must be documented on the LRMF Checklist:

- Existing Bulb Type
- Wattage
- Quantity
- Dwelling unit number and room location (including common areas)
- The EA must upload existing lighting system photos in the file
- The QCI must upload post lighting photos in the file

LED bulbs shall have a minimum 15-year life span and minimum 25000-hour average life. All bulbs, fixtures, and controls will be ENERGY STAR® rated. All bulbs, fixtures, and controls will be Underwriters Laboratories (UL) approved and installed in accordance with local code(s) and National Fire Protection Association (NFPA), www.nfpa.org 70 National Electric Code. LED Bulbs shall be used to replace existing incandescent light bulbs only. Annual energy savings will be based on a one-hour usage per day.

- LED bulbs must be omnidirectional
- LED bulbs must be soft- or warm-white to provide the hue similar to incandescent bulbs (unless the client requests brighter light)
- All LED bulbs installed must be ENERGY STAR® (version 2.0) rated
- LED bulbs installed in a dimmable socket must be designed to work with traditional dimmer switches
- LED bulbs installed in an enclosed housing must be approved for recessed or enclosed spaces
- LED bulbs must be installed where instructed in the work order.

- Weatherization workers may not leave the bulbs with the client to install.
- LED lighting replacement of fluorescent tube lighting: Michigan will replace all fluorescent tube lighting with LEDs.

**Mandatory Air Sealing**

The blower door is strongly encouraged when applicable at the audit and final inspection but not required as a diagnostic tool to measure the air tightness of buildings and to help locate air leakage sites. If a blower door is not or cannot be done, documentation must be uploaded as to why it was not conducted.

As air sealing and duct sealing are frequently covered with insulation during the weatherization process, the QCI must complete in-progress inspections of these measures, and any others that will become inaccessible during weatherization, to verify work standards are met.  It is recommended that the QCI be onsite during air sealing and duct sealing efforts during at least one of the first few unit completions to address any concerns before all units are complete. The QCI must inspect all air sealing and duct sealing efforts for all units before insulation covers these measures or viewing these measures becomes inaccessible. The QCI should contact BCAEO to determine if BCAEO would conduct virtual state monitoring of air sealing.

Seal the primary pressure boundary surfaces at the following locations:

- attic top-plates;
- attic ceiling;
- exterior wall, floor penetrations, and holes; and
- sill box to floor intersection if on unconditioned crawlspace or basement, or entire sill box area if conditioned foundation.

The following locations must be air sealed in each unit including common areas:

- Attic top plates
- Bypasses, penetrations, and/or holes in the ceiling
- Bypasses, penetrations, and/or holes in the walls
- Bypasses, penetrations, and/or holes in the floor (unconditioned foundations only)
- Sill box to floor intersection requires air sealing (unconditioned foundations only)
- Entire sill box area requires air sealing (conditioned foundations only)
- Exterior door weatherstripping
- Attic access (if access is between conditioned and unconditioned space)

- Foundation access (if access is between conditioned and unconditioned space)

Zone pressure diagnostic testing shall be done when applicable for attics and for attached garages. It is encouraged for other areas of the home as a diagnostic tool. Room pressures during air handler operation must be tested.

Document major air leakage holes and bypasses using the additional comment section on the LRMF checklist.

**Mandatory Duct Sealing**

Determine if any ducts are located outside the thermal boundary.  If so, the following must be documented on the LRMF checklist:

- Location of the duct sealing needed
- Linear feet of the duct sealing to be done
- Any specific material that maybe needed to complete the duct sealing
- Photos of all duct sealing prior to insulating

Determine if there are any catastrophic duct failures that need to be repaired before sealing and insulating.

- Location of duct repair
- Square footage of duct repair
- Any specific material that maybe needed to compete the duct repair
- Photos of all duct repairs pre and post prior to insulating

As air sealing and duct sealing are frequently covered with insulation during the weatherization process, the QCI must complete in-progress inspections of these measures, and any others that will become inaccessible during weatherization, to verify work standards are met.  It is recommended that the QCI be onsite during air sealing and duct sealing efforts during at least one of the first few unit completions to address any concerns before all units are complete. The QCI must inspect all air sealing and duct sealing efforts for all units before insulation covers these measures or viewing these measures becomes inaccessible. The QCI should contact BCAEO to determine if BCAEO would conduct virtual state monitoring of air sealing

Pressure pan testing shall be done when applicable in any homes where ducts are outside of the conditioned space. If the pressure pan readings are above 1 PA on any duct outside the conditioned space, duct sealing must be performed.

**Mandatory Duct Insulation**

Determine if there are any uninsulated ducts outside of the thermal boundary. Insulate ducts that are installed in unconditioned areas outside the thermal boundary to an R-8 or R-12 if exposed to the exterior. Do not insulate ducts that run through conditioned areas.

The following must be documented on the LRMF Checklist:

- Location of uninsulated duct
- Square feet of duct to be insulated
- Any specific material that maybe needed for the duct insulation
- Photos pre and post pictures of all ducts in need of insulating (outside the thermal boundary)

**Mandatory Ceiling insulation**

Determine the existing R-value of the attic insulation. Attic insulation must either be brought to an R-60, or to full capacity of the ceiling if less.

The following must be documented on the LRMF Checklist:

- Location of attic access
- Square foot to insulate
- Number of bags needed
- Insulation type to add
- Existing R-value
- Photos of existing insulation and post insulation

Determine if any of the following are needed prior to insulating:

- Baffles
- Insulation dams
- Flags for unity junctions
- Depth Markers

**Mandatory Exterior Wall Insulation**

Determine if exterior walls including buffered walls are insulated. Determine if the gross area of uninsulated exterior walls are less than 10 percent of the total wall area. Where the total gross area of any uninsulated exterior wall is >10%, insulate the missing areas to capacity with dense pack insulation.

The following must be documented on the LRMF Checklist:

- Building
- Total gross area
- Uninsulated gross area
- Percentage uninsulated
- Uninsulated wall location
- Gross area to insulate
- Wall Cavity Depth (inches)
- Insulation type to add
- Thermal Image of existing insulation depth (if possible)

**Mandatory Foundation Insulation**

<u>Conditioned or Unvented Foundations</u>
Mandatory: Insulate accessible rim/band joist (sill box) to R-30 or to capacity, if less.
Optional: Insulate accessible above-grade foundation walls to R-15 continuous insulation or R-19 cavity insulation or to capacity, if less.

<u>Unconditioned or Vented Foundations</u>
Mandatory: Insulate all floors over unconditioned foundations to R-30 or to full joist capacity, if less. Must include complete ground moisture barrier over any exposed dirt.

The following must be documented on the LRMF Checklist:

- Sill box:
    - Foundation access location
    - Sill box height (inches)
    - Perimeter to insulate (feet)

- Conditioned foundation wall:
    - Foundation access location
    - Above ground wall height (feet)
    - Perimeter to insulate (feet)
    - R-value to add
    - Insulation type to add
    - Unconditioned foundation wall
    - Uninsulated floor location

- Gross area to insulate
- Available cavity depth
- Insulation type to add
- Pre and post photos

# 6.0 Optional Energy Conservation Measures

Optional Measures include faucet aerators, low flow shower heads, water heater tank wrap insulation, water heater pipe wrap, refrigerators, LED lighting replacement of fluorescent tube lighting, HVAC replacement.

“Optional” measures may not be installed using DOE WAP funds in common spaces, and may only be installed in dwelling units if all other applicable mandatory measures are installed as well.

An Optional Measure may be skipped for any documented reason (including declined by the client). All optional measures being installed must be documented on the LRMF Priority Checklist including what dwelling unit they are to be installed in.

**General Heat Waste**

Grantees may install the identified general heat wasted items. These measures are intended to be relatively low-cost items that can be quickly and easily installed. These measure costs, including labor, must not exceed $250 total per dwelling unit. These measures must provide additional benefit to the client/customer and are not able to be tied to another measure.

These measures include:

- Faucet aerators 2.2 GPM or less
    - Dwellings units requiring aerators
    - Number needed
    - Location (bathroom or kitchen)
- Showerhead 2.5 GPM or less
    - Dwellings units requiring showerheads
    - Number needed
- Domestic Water Heater (DWH) tank insulation (R-10)
    - Location
    - Tank capacity (gallons)
    - Total number of water heaters to insulate

- DWH pipe insulation (6’ of both hot and cold-water lines nearest the DWH, and any accessible hot water lines beyond that to R-3)
  - Total linear feet of pipes to wrap
  - Linear feet to wrap individual unit
  - Location of water heater pipes
  - Pipe diameter in inches

**Refrigerators**

Replace up to (1) refrigerator per dwelling unit with a label rating of less than 400kWh/yr and maximum installed cost of $850 per unit when the existing refrigerator:

- Was manufactured before 2001, OR
- Uses >1000 kWh/yr based upon energy use metering or industry accepted resources.

Refrigerators may be skipped for any documented reason (including declined by client). Other potential reasons include, but are not limited to: supply chain delays, and equivalent units not meeting price requirements.

**Primary Heating and Air-Conditioning System Replacements**

The heating/cooling system may be skipped/not replaced. Otherwise, the Local Weatherization Operator may consider:

1. Replace existing ducted electric resistance forced air furnace and air conditioning combination with a heat pump of minimum 10/HSPF & COP @5°F >1.75 (at maximum capacity operation) which includes an EC air handler motor.

2. Replace existing combination of non-ducted fixed electric resistance heat (e.g., electric baseboard, and PTAC units), and non-ducted air conditioning (i.e., window or room A/C, including PTAC) with a minimum 10/HSPF & COP @5°F >1.75 (at maximum capacity operation) mini-split heat pump system.

3. Replace existing ducted heat pump system that is manufactured before 2006 with a heat pump rated a minimum of 10/HSPF & COP @5°F >1.75 (at maximum capacity operation) which must include an EC air handler motor.

4. Replace any existing window A/C system manufactured before 2014 with a new 12 CEER or higher unit.

5. If the building has any other existing combination of heating/cooling systems other than as described above, then an energy model may be run in compliance with the current approved audit process which assumes items 1-8 have been completed and determine if an alternative heating/cooling system replacement is cost effective for this specific building.

# 7.0 Work Order Determination and Development

**Energy Conservation Measure**

DOE approved priority list will take the place of entering the collected building data into an approved software program. Priority measures when done correctly have been shown to provide energy savings and have proven to pay for themselves over the lifespan of the measure. All mandatory items must be evaluated for and documented on the approved LRMF Checklist.

**Incidental Repair Measure**

Incidental Repair Measure (IRM) costs, as defined in WPN 19-5 (A repair necessary for the effective performance or preservation of newly installed weatherization materials), funded with DOE WAP funds will not exceed 10% of the project's total Energy Conservation Measure ECM package. All Incidental repairs must be tied to a specific ECM and must be documented on the LRMF Checklist Additional Comments section under the measure it is tied with. Photos of all incidental repairs must be included in the file.

**Ancillary Costs**

Items necessary for the proper installation of weatherization materials as required by materials manufacturers, general construction, and/or WAP field standards to achieve a finished product in a typical installation where no unusual or extensive repairs are needed. Ancillary items typically refer to small items such as hardware, fasteners, adhesive, sealant, etc.

All ancillary (added) costs must be documented on the LRMF Checklist under the Additional Comments section, with the measure they belong to. Photos of all ancillary costs must be included in the file.

# 8.0 Technical Weatherization Install Requirements

**PURPOSE:**

The purpose of this policy is to identify and define technical weatherization installation requirements on homes to ensure worker safety and client safety.

**POLICY:**

All measures installed in the Michigan WAP must meet the following requirements to ensure the safety of the home and to ensure proper weatherization of each home weatherized.

**Allowable Measures**

All weatherization materials utilized in conjunction with work performed as a part of this program shall, at minimum, meet the NREL Standard Work Specifications and the Standards for Weatherization Materials contained in “Appendix A”, or variances approved by DOE for the State of Michigan, as published in the 10 CFR 440 and DOE WPN 19-4. In cases where additional requirements apply, the specific requirement(s) will be listed in the appropriate section of this document.

All measures shall be completed so as to successfully perform the intended function on a continuing basis (Life expectancy for each measure can be found in WPN19-4 or the SWS).

Work shall be completed in a manner so as not to detract from the general appearance and structural integrity of the home and shall be in compliance with governing codes, the requirements of this document, and manufacturer’s recommendations.

Weatherization measures are for the purpose of rendering the heated portions of dwellings energy efficient and to ensure the safety and protection of such measures, whether new or existing (e.g., any wood or other product which the manufacturer recommends to be sealed, that is used to complete weatherization and which is exposed to moisture, shall receive a minimum of prime painting or other recommended sealer). For the purpose of this program, if necessary client usage of areas requires heat to those areas, they shall be treated as heated and weatherized accordingly. Unheated utility rooms, porches, etc., are not eligible for weatherization.

Health and safety measures shall be addressed as required to eliminate hazards as defined in the Michigan Weatherization Field Guide, and in accordance with the State of Michigan, U.S. DOE Weatherization Assistance Program State Plan, and state and local codes.

If energy savings cannot be realized under this program due to the condition of the building, these conditions shall be documented in the file and the building shall not be weatherized. Such conditions shall be brought to the attention of the property owner with referrals to other resources, if available.

Measures must be installed properly utilizing the Standard Work Specifications outlined in the Michigan Weatherization Field Guide.

**Mandatory Health & Safety Measures**

Implementation of ASHRAE 62.2 ventilation standard is required.

Clothes dryers shall be vented to the exterior.

<u>Installation of smoke and carbon monoxide detectors</u>

Every dwelling should have at least one working smoke alarm. CO detectors must be installed in any dwelling unit that does not have a working CO detector. Install these alarms on each conditioned level, near the bedrooms and in the areas containing combustion appliances, a stove, a furnace, DWH, for example. Single-function alarms or combination alarms can interconnect electrically for whole-building protection. If one alarm sounds the other alarms sound too. If new hard wire installation is needed, a licensed electrician must install the alarm.

Smoke detectors are required as a health and safety measure. Smoke detectors may be installed where alarms are not present/ inoperable.

Smoke detectors if battery operated shall be sealed, non-replaceable, 10-year batteries, installed in accordance with the manufacturer’s recommendations, following state and local code requirements. New batteries may be installed in existing-working smoke detectors.

When installing hardwired smoke alarms, it will be listed and labeled in accordance with UL 217 and installed in accordance with the IRC or as required by the authority having jurisdiction.

**Order of Measure Installation**

Measures installation shall be completed in the following sequence:

- Health and Safety measures to correct hazards identified on the audit that directly affect the health and safety of occupants (WAP staff and workers included),
- All applicable priority list measures.

**Fuel Switching**

Fuel switching is not allowed using the LRMF Priority List. If an agency identifies that fuel switching is potentially beneficial to the project a complete energy audit shall be conducted.

**Quality Control Inspection**

The QCI must evaluate the project for compliance with the LRMF Priority List:

(1) the building was eligible for use with the priority list;
(2) all mandatory measures were installed; and
(3) no energy conservation measures were required that would have made use of the priority list ineligible from WPN 22-8.

Signing the QCI Checklist will confirm the QCI evaluated the project for compliance with priority list use.

All installed measures including health and safety, mandatory, and optional must be thoroughly evaluated by a multifamily certified QCI. As air sealing and duct sealing are frequently covered with insulation during the weatherization process, the QCI must complete in-progress inspections of these measures, and any others that will become inaccessible during weatherization, to verify work standards are met. It is recommended that the QCI be onsite during air sealing and duct sealing efforts during at least one of the first few unit completions to address any concerns before all units are complete. The QCI must inspect all air sealing and duct sealing efforts for all units before insulation covers these measures or viewing these measures becomes inaccessible. The QCI should contact BCAEO to determine if BCAEO would conduct virtual state monitoring of air sealing.

Each building's LRMF Checklist must be signed and dated by the QCI verifying that the work was completed to SWS/Michigan Field Guide standards. The QCI must sign only when they agree that all measures have met these standards. If a QCI discovers that work has not been completed to standards, they must include all callback details in the Additional Comments section of the QCI page of the LRMF Checklist. No project will be considered complete until the QCI has signed that all measures are completed in compliance with SWS/Michigan Field Guide standards.  QCI photographs of each dwelling's measures must also be uploaded in the appropriate multi-family file.

# Form A – Low-Rise Multifamily Priority List Checklist - Region 3

| | | |
|---|---|---|
| The building is 3-stories or less above grade. | ☐ **True** | ☐ **False** |
| The building contains 5 or more dwelling units. | ☐ **True** | ☐ **False** |
| The building structure is wood-frame? | ☐ **True** | ☐ **False** |

If you answered **TRUE** to all three above questions, you may continue with the following checklist items.
If you answered **FALSE** to any of the above questions, then this property is not eligible for use with this checklist.

Is this checklist for a single building?

☐ **Yes**.
☐ **No**. How many buildings are to be considered for this checklist? ___________

Client ID/Job Number: ___________________________________________

Address of building(s): __________________________________________________________________________

Number of dwelling units per building: _______

Unit types and #: 1BR unit/building: ____; 2BR unit/building: ____; 3BR unit/building: ____; 4BR unit/building: ____

Total number of dwelling units considered for this checklist: ________

Total number of WAP eligible units: _______________________ Percentage of building eligible: ____________

Primary heating fuel: ___________________________ Secondary heating fuel: __________________________

Are there any combustion appliances contained within the building(s)?

☐ **Yes**. Total #: _______. Use combustion testing *Form C* or Grantee's existing CAZ form for each dwelling unit tested in the building(s).
☐ **No**. Proceed with this checklist. No combustion safety testing is required.

Use H&S *Form H* to guide the physical safety inspection of every dwelling unit in the building(s) or use the Grantee's existing H&S inspection form.

Total # of units inspected: ______________

Required photos of inspection:

☐ Complete exterior of all sides of building(s).
☐ Foundation area including measurement of joist depth, insulation depth, and air sealing locations.
☐ Attic area including measurement of joist depth, insulation depth, and air sealing locations.
☐ Wall cavity visual inspection of cavity depth, insulation depth, and air sealing locations.
☐ All accessible ducts outside the thermal boundary including areas to repair, seal, and insulate.
☐ All diagnostic testing results (CO, CAZ, SSE, CFM, etc.).
☐ Data tags (or lack thereof) for all heating/cooling systems, refrigerators, and water heaters.
☐ Flue/chimney for all vented combustion appliances.
☐ All H&S related issues.
☐ All Incidental Repair Measures (IRM).

**1 – Mandatory – Health and Safety Measures:** SWS 2, 6;

Complete all H&S measures as required and detailed on *Form H* for each unit.

| H&S Measure | Quantity | Dwelling unit number/location |
| --- | --- | --- |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Additional Comments: ______________________________________________________________________________

**2 – Mandatory - LED Lighting**: SWS 7.0103.1;

Is all screw-based lighting in the building(s) LED? (Consider only lights used a minimum 1 hour per day)

☐ **Yes.** Lighting replacement is not required. Skip to Section 3.

☐ **No**. Provide detail of type, wattage, number to be replaced and location:

| Existing Bulb Type | Wattage | Quantity | Dwelling unit numbers / room locations |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Additional Comments: ___________________________________________________________________________

**3 - Mandatory - Air Sealing:** SWS 3.01, 3.0202.1;

Check the box for each item that applies to this building or building type. Add any necessary details to the building diagram or comments section below.

- ☐ Attic top-plates;
- ☐ Bypasses, penetrations, and/or holes in the ceiling;
- ☐ Bypasses, penetrations, and/or holes in the walls;
- ☐ Bypasses, penetrations, and/or holes in the floor (unconditioned foundations only);
- ☐ Sill box to floor intersection requires air sealing (unconditioned foundations only);
- ☐ Entire sill box area requires air sealing (conditioned foundations only);
- ☐ Exterior door weatherstripping/sweep;
  Locations: ______________________________________________________________________________
- ☐ Attic Access (if access is between conditioned and unconditioned space);
  Locations: ______________________________________________________________________________
- ☐ Foundation Access (if access is between conditioned and unconditioned space);
  Locations: ______________________________________________________________________________
- ☐ Other: _________________________________________________________________________________

Additional Comments: ___

**4 – Mandatory – Duct Sealing:** SWS 5.0105, 5.0106.1;

Are any heating or cooling system ducts located outside the thermal boundary (i.e., in unconditioned space)?

☐ **Yes.** Continue with the Duct Sealing Section.

☐ **No.** Duct sealing is not required. Skip to Section 5.

**Duct Repairs:** Are there any catastrophic duct failures that need repair prior to sealing and insulating?

☐ **Yes.** List Repairs in Table below.

☐ **No.** Continue with the Duct Sealing Section.

| Duct Repair Location | Square Ft. | Materials |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

**Duct Sealing:** Note location of ductwork not sealed with mastic.

☐ Accessible ductwork in an unconditioned attic.

☐ Accessible ductwork in an unconditioned subspace.

| Duct Sealing Locations | Linear Ft. | Materials |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

Additional Comments: ___

**5 – Mandatory - Duct Insulation**: SWS 5.0107;

Are all accessible ducts outside the thermal boundary already insulated?

☐ **Yes**. Additional duct insulation is not required. Skip to Section 6.

☐ **No**. Insulate to R8 (or R12 if exposed to the exterior).

| Location for Duct Insulation | Square Ft. | Materials |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

Additional Comments: ___

**6 – Mandatory – Ceiling Insulation:** SWS 4.01;

Is the attic insulated to R60 or greater, or to full capacity if less?

☐ **Yes**. Additional attic insulation is not required. Skip to Section 7.

☐ **No**. Insulate attic to R60 or full capacity of ceiling if less.

| Attic Access Location | Square Feet to Insulate | Insulation Type to Add |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Attic prep required before insulating (check all that apply):

☐ Air sealing (detail in section 2)

☐ Soffit baffles (number per building): ___________________________

☐ Insulation dams (linear ft): __________________________________

☐ Flag utility junctions (total number/building): ___________________

☐ Other: ___________________________________________________

Additional Comments: ______________________________________________________________________________

**7 – Mandatory - Exterior Wall Insulation:** SWS 4.0202.1;

Consider all walls that are part of the conditioned boundary, including walls in buffered spaces such as unconditioned stairways and hallways. Do all exterior walls (including buffered walls) have existing insulation?

☐ **Yes**. Additional wall insulation is not required. Skip to Section 8.

☐ **No**. If NO, is the gross area of uninsulated exterior walls >10% of total exterior wall area?

| Building | Total Gross Area (ft2) | Uninsulated Gross Area (ft2) | % Uninsulated |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

☐ **Yes**. Dense pack all uninsulated exterior walls to full capacity.

☐ **No**. Additional wall insulation is not required. Skip to Section 8.

| Uninsulated Wall Location | Gross Area to Insulate (ft2) | Wall Cavity Depth (inch) | Insulation Type to Add |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Wall prep required before insulating; check all that apply:

☐ Lead-safe work practices

☐ Repairs. Describe: ___________________________________________________________

☐ Insulation must be installed from inside the building

☐ Other: ______________________________________________________

Additional Comments: ______________________________________________________________________________

**8 – Mandatory – Floor Insulation:** SWS 4.03;

Foundation spaces are (Check all that apply):
☐ Conditioned. Complete sub-section (A) of this page.
☐ Unconditioned and/or vented. Complete sub-section (B) of this page.
☐ Slab. Floor insulation is not required. Skip to Section 9.

(A) Conditioned Foundations: SWS 4.0401, 4.0402

**Mandatory**: Are all accessible rim/band joists (sill boxes) insulated to R30 or to capacity, if less?
☐ **Yes**. Rim/band joist insulation is not required. Skip to Section 8(b).
☐ **No**. Insulation is required. Complete the following table.

| Foundation Access Location | Sill Box Height (inches) | Perimeter to Insulate (feet) | R-Value to Add | Insulation Type to Add |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

**Optional**: Above-grade foundation walls have:
☐ Cavity insulation of R19, or to capacity, if less.
☐ Continuous insulation of R15 or more.

If NEITHER of the above boxes are checked, then foundation wall insulation is an allowable measure.

Complete the following table if this measure is to be performed.

| Foundation Access Location | Above-Ground Wall Height (feet) | Perimeter to Insulate (feet) | R-Value to Add | Insulation Type to Add |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

(B) Unconditioned or Vented Foundations: SWS 4.03;

Are any floors of the conditioned areas of the building(s) uninsulated and adjacent to accessible unconditioned foundation spaces?
☐ **Yes**. Insulate all uninsulated floors adjacent to heated space to R30 or to full joist capacity, if less.
Exception: No insulation is required for crawlspace heights below 2 feet: Average Height: ______ feet
☐ **No**. Floor insulation is not required. Skip to Section 9.

| Uninsulated Floor Location | Gross Area to Insulate (ft2) | Available Cavity Depth (inch) | Insulation Type to Add |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

Do any foundation spaces to which insulation was added have an exposed dirt floor?
☐ **Yes**. Install complete ground moisture barrier over any exposed dirt floor in spaces where insulation was added. SWS 2.0202;
☐ **No**. Ground moisture barrier is not required. Skip to Section 9.

Additional Comments: ___________________________________________________________________________

## 9 – Optional - General Heat Waste Reduction:

☐ Install faucet aerators (≤ 2.2 GPM). SWS 7.0201.1;
Total number of aerators to install: __________

| Dwelling Units Requiring Aerators | Number of Aerators Needed | |
|---|---|---|
| | Bath | Kitchen |
| | | |
| | | |
| | | |
| | | |
| | | |

☐ Install low-flow showerheads (≤ 2.5 GPM). SWS 7.0201.1;
Total number of showerheads to install: __________

| Dwelling units requiring showerheads | Quantity to each unit |
|---|---|
| | |
| | |
| | |
| | |
| | |

☐ Water heater tank insulation (R-10 minimum). SWS 7.0301.2;
Total number of water heaters to insulate: __________

| Location of Water Heaters | Tank Capacity (gal) |
|---|---|
| | |
| | |
| | |
| | |
| | |

☐ Water heater pipe wrap (Insulate the 6' of cold-water nearest the DWH and any/all accessible hot water line to a minimum of R3). SWS 7.0301.1;
Total linear feet of pipes to wrap: __________

| Location of Water Heater Pipes | Linear feet to wrap (ft) | Pipe Diameter (inch) |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

**Total cost of all GHWR measures must not exceed $250 per eligible dwelling unit**
Allowable cost = total number of WAP-eligible dwelling units (click here) x $250 = $ ____________

Additional Comments: ______________________________________________________________________________

**10 – Optional - Refrigerator:** SWS 7.0101.1;

Were any existing refrigerators manufactured prior to 2001?

☐ **Yes**. Replacement is allowed. Replacement refrigerators must be rated to use 400 KWh/yr. or less and cost no more than $850 each (price includes all materials, labor and safe disposal of old fridge).

☐ **No**. Refrigerator replacement is not allowed based on age. Continue to next question.

| Building | Dwelling Units with pre-2001 refrigerators | Total to Replace |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

Were any refrigerators metered?

☐ **Yes.**

☐ **No**.

Did any refrigerators have a metered result or industry accepted resource result of 1000 KWh/yr. or more?

☐ **Yes**. Replacement is allowed. Replacement refrigerators must be rated to use 400 KWh/yr. or less and cost no more than $850 each (price includes all materials, labor and safe disposal of old fridge).

☐ **No**. Skip to Section 11.

| Building | Dwelling Units with refrigerators metered > 1000 KWh/yr. | Total to Replace |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

Additional Comments: ______________________________________________________________________________

**11 – Optional – LED Lighting Replacement of Fluorescent Tube Lighting:** SWS 7.0103.1;

Will any Fluorescent Tube lights or fixtures be replaced with LED lighting?

☐ **Yes**. Provide details of existing lighting to be replaced in the following table.

☐ **No**. Skip to Section 12.

| Fixture Length (ft) | Fixture Quantity | Quantity and Type of Tubes in Each Fixture | Dwelling unit numbers / room locations |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Replacement lighting will be: ☐ LED Fixtures ☐ LED T12 tubes ☐ LED T8 tubes

Additional Comments: ______________________________________________________________________________

**12 – Optional - HVAC Replacements:** SWS 5.0108;

Select any that apply and provide the replacement details if replacement is an option:

☐ Existing ducted electric resistance forced air furnace and central air conditioner combination

Replace with heat pump (*minimum 15 SEER, 8.2 HSPF*)

| Number to install | Capacity (KBTU) | For dwelling unit numbers: |
|---|---|---|
| | | |

☐ Existing non-ducted fixed electric resistance heat and non-ducted air conditioning

Replace with mini-split heat pump (*minimum 19 SEER, 10 HSPF*)

| Number to install | Capacity (KBTU) | For dwelling unit numbers: |
|---|---|---|
| | | |

☐ Existing ducted heat pump manufactured prior to **2006**

Replace with heat pump (*minimum 15 SEER, 8.2 HSPF*)

| Number to install | Capacity (KBTU) | For dwelling unit numbers: |
|---|---|---|
| | | |

☐ Existing window air conditioner (WAC) unit(s) manufactured prior to **2014**

Replace with *minimum 12 CEER* unit(s) of the same or lesser BTU capacity.

Total number of WAC to install: _________

Capacity of each unit: _______________KBTU

| Number of WAC to install per dwelling unit | For dwelling unit numbers: |
|---|---|
| 1 | |
| 2 | |
| 3 | |

☐ Existing system does not match any of the above descriptions

If replacement is desired, or if fuel-switching is proposed, a complete energy model will be required providing replacement with an SIR of 1.0 or greater. The model must assume that all mandatory items above have been completed.

Auditor (printed name):_____________________________________ Auditor signature:__________________________

Additional Comments: ___

I certify that the project meets WPN 22-8 requirements for PL use and that **all work done** meets SWS requirements:

Quality Control Inspector name (printed):____________________

Quality Control Inspector signature:____________________

Quality Control Inspector certification number:____________________

Date:____________________

Return visit dates:____________________

Additional Comments: ____________________

I certify that the project meets WPN 22-8 requirements for PL use and that **all work done** meets SWS requirements:

BCAEO Technical Monitor name (printed):________________________________________________________________

BCAEO Technical Monitor signature:____________________________________________________________________

Certification Number:_____________________________________________________________________________

Date:_____________________________________________________________________________________________

Additional Comments: _____________________________________________________________________________

# Form H – LRMF Dwelling Unit Health & Safety Checklist

Client ID/Job number: ___________________________________________
Building address: ___________________________________________
Dwelling unit number: __________
Health & Safety inspection performed by (print name clearly): _________________________________
Date of inspection: __________________________

Does the dwelling have operable smoke alarms in all locations required by the Grantee?

☐ **Yes.** ☐ **No.** New smoke alarm(s) needed in: _____________________________________________

Does the dwelling have operable carbon monoxide (CO) alarms in the vicinity of all sleeping areas and on each occupiable level (as required by ASHRAE 62.2)?

☐ **Yes.** ☐ **No.** New CO alarm(s) needed in: ________________________________________________

<u>ASHRAE 62.2 Ventilation Data Collection:</u>

- Total Conditioned Floor area: _________ft2
- Vertical distance between lowest and highest above-grade points within the pressure boundary: _______ft
- # of Bedrooms: _______ # of Occupants: _______ # of Full Baths: ________
- Operable windows: ☐ Kitchen ☐ Bath 1 ☐ Bath 2 ☐ Bath 3
- Is there an operational and vented kitchen fan?
  - ☐ **Yes**. Measured fan flow: ___________ CFM
    - ☐ Fan is vented directly to outside
    - ☐ Fan is vented to an unconditioned space (e.g., unfinished attic)
  - ☐ **No.**
- Are there existing and operational fans in any full bathrooms(s)?
  - ☐ **Yes.** ☐ Bath 1 ☐ Bath 2 ☐ Bath 3

| | | | |
|---|---|---|---|
| Measured fan flow(s) CFM: | Bath 1: _____ | Bath 2: _____ | Bath 3: _____ |
| Fans vented directly to outdoors: | Bath 1:☐ | Bath 2: ☐ | Bath 3: ☐ |
| Fans vented to unconditioned space: | Bath 1:☐ | Bath 2: ☐ | Bath 3: ☐ |

  - ☐ **No.**

- Target blower door (if known): _________ $CFM_{50}$ Final blower door (if known): _________ $CFM_{50}$

Continuous ventilation required: __________ CFM.

Other observed health & safety issues (include photo of each item found):

☐ Lead:
Describe: ____________________________________________________________________________
☐ Suspected Asbestos:
Describe: ____________________________________________________________________________
☐ Pests:
Describe: ____________________________________________________________________________
☐ Water heater issues:
Describe: ____________________________________________________________________________
☐ Combustion appliance issues:
Describe: ____________________________________________________________________________
☐ Electrical issues:
Describe: ____________________________________________________________________________
☐ Moisture issues
Describe: ____________________________________________________________________________
☐ Occupant Health Concerns:
Describe: ____________________________________________________________________________
☐ Radon precautionary measures needed:
Describe: ____________________________________________________________________________
☐ Other:
Describe: ____________________________________________________________________________

# Form C – LRMF Combustion Safety Checklist

Client ID/Job Number: ____________________________________________________

Building address: __________________________________________

Dwelling unit number: _____________________

Testing performed by (print name legibly): ________________________________ Date: _______________

What type of combustion appliances are present in the space being tested? (Check all that apply):

☐ Gas range and/or stovetop ☐ Natural draft furnace or boiler (Category I, 70%+)
☐ Induced draft furnace or boiler (Category I, 80%+) ☐ Sealed combustion furnace or boiler (Category IV, 90%+)
☐ Natural draft water heater (Category I) ☐ Power-vented water heater (Category III)
☐ Gas dryer ☐ Other: ___________________________________________________________________

Did fuel leak testing reveal any fuel leaks?

☐ **Yes.** Location(s): _______________________________________________________________
☐ **No.**

Ambient Carbon Monoxide (CO) result for the space being tested: (As measured CO: __________PPM)

If CO > 8 ppm, what appears to be the source? _____________________________________________________

Any action taken? ☐ **No** ☐ **Yes:** _______________________________________________________________

Unvented space heaters are present in the home: ☐ **Yes.** ☐ **No.**

If YES, ☐ Unvented space heater(s) satisfy requirements of WPN 22-7 and may remain in the home
☐ Unvented space heater(s) must be removed prior to weatherization (**# to remove**: ____)

Was Worst-case CAZ Depressurization test performed? (Complete one of this Form C for each CAZ)

☐ **Yes**. Describe Worst-Case dwelling setup/location: __________________________________________
☐ No spillage was detected at worst-case for any appliances in the CAZ
☐ Worst-case spillage test failed for 1 or more appliances in the CAZ
Which appliance(s) failed: ______________________________________________________
Possible cause(s): ___________________________________________________________
☐ **No.** The reason is:
☐ No category I vented appliance is in the space being tested
☐ Other: ___________________________________________________________________

Diagnostic Testing Results in Chimney/Flue or at Termination:

Appliance: ____________________ Air Free CO Measurement: ________ SSE Measurement: _______%
Appliance: ____________________ Air Free CO Measurement: ________ SSE Measurement: _______%
Appliance: ____________________ Air Free CO Measurement: ________ SSE Measurement: _______%

CO testing results of gas range and/or stovetop (leave blank if none)

**Oven:** ______ ppm **Stove burners:** 1 _______ppm 2 _______ppm 3 _______ppm 4 _______ppm

Chimney/Flue Visual Inspection and other CAZ related notes: ____________________________________________
______________________________________________________________________________________

Required Photo Checklist:
☐ All combustion appliances, chimney/flues, and data plates.
☐ All diagnostic testing results (CO, SSE, Depressurization, etc.).
☐ Any repairs necessary or required.