

**WAP WPN 17-7 Attachment A:
Additional Health and Safety Guidance Related to Heating Systems**

- Budget Category Decisions
- Code Compliance and Inspection
- Electric Space Heaters
- Fireplaces – Special Considerations
- Manufactured Homes – Special Considerations
- Masonry Chimneys
- Solid Fuel-Fired Heaters
- Unvented Gas- and Liquid-Fueled Space Heaters
- Vented Gas- and Liquid-Fueled Space Heaters

Budget Category Decisions: Perform a full DOE-approved energy audit prior to deciding how to categorize the cost of space heater repair or replacement. If the measure is an approved WAP expenditure and the audit justifies the costs with an SIR equal to or greater than 1.0, the measure must be performed and costs charged as an Energy Conservation Measure (ECM). If the measure is not an eligible ECM, the measure may be charged as either a Health and Safety (H&S) measure if included in the DOE approved Grantee Annual Health and Safety Plan. More information is available in the DOE Health and Safety Guidance and Incidental Repair Guidance to assist with this decision.

Code Compliance and Inspection Requirements: Installation of space heaters requires knowledge of appropriate industry standards and comply with the applicable building code(s) in the municipality where installation is taking place. Building permits shall be secured, where required for all space heater work. This is a program operations cost. The manufacturer approved initial start-up procedures must be followed before any heater is put into operation. States are reminded that even licensed heating contractors may not be aware of the stringent requirements of the Weatherization Program, so their work should be reviewed by Program staff. Safety inspections related to the space heater should include, but not be limited to, a check for adequate floor protection, and code-compliant clearances to walls and other combustible materials. Even though many vented space heaters are manufactured with spill switches, it is still a requirement that a worst-case depressurization draft test be performed on all vented units.

Electric Space Heaters: DOE will not permit any DOE-funded weatherization work other than minor repairs on electric space heaters. This does not preclude the use of other funding sources for the replacement or major repair of electric space heaters, but the Department does not encourage it because of:

- Lower output ratings (size);
- Risk of fire hazards; and,
- Inadequate electrical systems in older homes, which frequently cannot safely carry the power required to operate an electric heater.

Work on such systems may make local agencies liable for inadequate electric wiring and any damages that result.

Fireplaces – Special Considerations: Fireplaces present special hazards that are affected by weatherization. If draft is poor, smoke may downdraft into the living space causing poor indoor air quality. It is likely the occupants will ventilate in these situations. Near the end of a wood fire, glowing coals will remain, radiating heat, while the draft lowers and allows the top of the chimney to cool, further reducing draft. The reduced oxygen available to the glowing coals causes production of CO without the smoke that encourages space ventilation. This is a dangerous situation as the CO enters the living space due to the lowered draft, causes drowsiness of occupants, and sometimes worse. For this reason it is extremely important to make sure there is a CO alarm installed in this combustion zone and occupants are educated to the danger signs and what to do.

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.

Conduct pre- and post- weatherization worst case CAZ depressurization testing in spaces having a fireplace. Since there is no consensus method for verifying safe operation of fireplaces, Grantees can propose testing policies and limits (e.g., one Grantee uses a depressurization limit of -5 in the CAZ of any wood-burning combustion appliances, including fireplaces). If the Grantee does not propose a policy and fireplaces are left operational, the vent must meet code or the home cannot be weatherized.

To evaluate operation of *other* combustion appliances, the blower door can be set to run at 300 CFM (set up as for depressurization testing), or other Grantee-approved flow, to mimic the airflow dynamics likely when the fireplace is in use.

Manufactured Homes – Special Considerations: The Manufactured Home Construction and Safety Standards (<https://portal.hud.gov/hudportal/HUD?src=/hudprograms/mhcss>) require all fuel-burning, heat-producing appliances in mobile homes, except ranges and ovens, to be vented to the outside.

All fuel-burning appliances in mobile homes, except ranges, ovens, illuminating appliances, clothes dryers, solid fuel-burning fireplaces and solid fuel-burning stoves, must be installed to provide for the complete separation of the combustion system from the interior atmosphere of the manufactured home (i.e., to draw their combustion air from outside).

Masonry Chimneys: Masonry chimneys used by vented space heaters should be properly lined in compliance with the International Fuel Gas Code (IFGC). When WAP installs new equipment it must meet local code requirements. Masonry chimneys that have been retired (i.e. not being used by existing equipment) should be assessed for energy savings opportunities such as air sealing and capping to reduce thermal bypass.

Solid-Fueled Space Heaters: Solid fueled space heaters include wood stoves, coal stoves, pellet stoves, and fireplaces. Wood, coal, and pellet fired furnace and boiler systems should be treated as vented heating systems and are not covered here.

Assess solid fuel-fired appliances to ensure safe installation prior to weatherization activities taking 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.

Unvented Gas- and Liquid-Fueled Space Heaters: This policy applies to unvented space heaters fueled by natural gas, propane or kerosene. This policy is consistent with the IRC and the IFGC and is divided to address primary and secondary heat sources.

Primary Heat Sources:

DOE will not permit any DOE-funded weatherization work where the completed dwelling unit is heated with an unvented gas- and/or liquid-fueled space heater as the primary heat source. The primary heat source must be replaced with a vented unit prior to weatherization. The replacement unit should be sized so it is capable of heating the entire dwelling unit, consistent with audit requirements described in [10 CFR 440.21\(e\)\(2\)](#).

Secondary Heat Sources:

Secondary unvented units that conform to the safety standards of ANSI Z21.11.2 may remain as back-up heat sources. DOE is allowing this flexibility primarily to provide low-income clients an emergency back-up source of heat in the event of electrical power outages. When selecting items to leave behind, give preference to code-compliant units that do not require electricity.

Secondary unvented units that do not meet ANSI Z21.11.2 must be removed and properly disposed of prior to weatherization but may remain until a replacement heating system is in place. Repair of secondary unvented units is not allowed. Secondary unvented units that meet the ANSI Z21.11.2, but are not operating safely, must be removed and properly disposed of.

An unvented gas- and liquid-fueled space heaters that remains in a completed single-family house after weatherization shall:

- Not have an input rating in excess of 40,000 Btu/hour;
- Not be located in, or obtain combustion air from sleeping rooms, bathrooms, toilet rooms, or storage closets, except:
 - One listed wall-mounted space heater in a bathroom if permitted by the authority having jurisdiction which --:
 - Has an input rating that does not exceed 6,000 Btu/hour;

- Is equipped with an oxygen-depletion sensing safety shut-off system; and
- The bathroom has adequate combustion air;
- One listed wall-mounted space heater in a bedroom if permitted by the authority having jurisdiction, which --:
 - Has an input rating that does not exceed 10,000 Btu/hour;
 - Is equipped with an oxygen-depletion sensing safety shut-off system; and
 - The bedroom has adequate combustion air.

Vented Gas- and Liquid-Fueled Space Heaters: Treat vented gas- and liquid-fueled space heaters the same as furnaces in terms of combustion safety testing, repair and replacement. This policy applies to vented space heaters fueled by natural gas, propane, or oil.