

Department of Energy

MEMORANDUM

Date: March 18, 1992

Subject: Weatherization Assistance Program (WAP) Space Heater Policy

To: Support Office Directors, WAP Program Managers

BACKGROUND

An estimated three million low-income households in the United States rely on space heaters as their primary method of heating their homes. An additional two million low-income households use space heaters as a secondary method of heating. Many States have requested that they be allowed to repair or replace space heaters on an as needed basis, the same treatment for furnaces are given.

Potential health and safety risks associated with the use of space heaters, especially portable and unvented devices, coupled with the limited base of technical knowledge on space heaters, made it imperative that space heater operation be carefully understood prior to the development of Department of Energy (DOE) policy. Therefore, the Weatherization Assistance Programs Division commissioned a study, a copy of which was previously distributed, to provide us with information on the issue of whether to include space heaters as an allowable measure in the WAP and under what conditions and circumstances. The WAP also conducted a survey of States to collect additional information on space heater programs that already exist, which was previously provided as well.

INTRODUCTION

A draft space heater policy was transmitted to the Support Offices and the States for comment on October 18, 1991. We received many comments for which we thank everyone. These comments were taken into consideration, where possible, in determining the policy contained herein. The major concerns from States that weatherize space heater homes fall into two categories: (1) That there may be some homes occupied by WAP eligible clients where unsafe conditions exist prior to weatherization work, and (2) that weatherization air tightening techniques have improved to the point that they can create indoor air quality concerns if used in homes with space heaters when replacement or repair of such equipment is not allowed.

The space heater report that was completed for WAP pointed out a variety of areas of concern but was not able to obtain air quality data or standards that could be used to formulate a final space heater policy. The North Carolina IAQ testing, admittedly limited, provides further concerns and actual readings in the 120 homes measured in the study. The resulting policy,

therefore, attempts to take a common sense approach to the treatment of space heaters, taking into consideration the limited information and experience we have to date.

APPLICABILITY

This policy applies to gas and liquid fueled space heaters only. Wood burning stoves were treated earlier; coal burning stoves are still under consideration. This policy applies to gas and liquid fueled space heaters whether the appliance is the primary or secondary heat source.

INCIDENTAL REPAIRS

Incidental repairs under the WAP are not affected by the policy contained herein. Agencies may continue making incidental repairs necessary to allow weatherization work to proceed safely, including to space heaters.

SPACE HEATER POLICY

Any space heater replacement or repair procedure should include inspection to ensure that a working smoke detector is installed on the same floor as the space heater. In instances where a smoke detector is not present or is not operating properly you may purchase and install one with DOE funds. The cost of the purchase and installation of the smoke detector is a material cost.

Client education, including information on the proper operation of the equipment, should be provided. Checks should be made to insure that auxiliary considerations, such as electrical wiring or chimneys, are in good condition; and, that no obvious building code violations or other safety hazards related to the space heater are evident. Installation of space heaters requires knowledge of appropriate industry standards and adherence to all aspects of the applicable building code(s) in the municipality where installation is taking place. Building permits should be secured, where required, (this is a materials cost as well) for all space heater work and final inspection by competent professionals should take place before any heater is put into operation.

We have referenced a number of documents that may be useful to the grantees in adding this component to their program. These documents found in this guidance under the heading of "Related Materials and Documents," and have either already been distributed to you and the grantees; or, as in the case of the Consumer Product Safety Commission pamphlets, being sent under separate cover.

1. Vented Space Heaters

Oil-fired space heaters (which are always vented), vented kerosene space heaters and vented gas space heaters should be treated as if they are furnaces. DOE is taking this approach because of the similarities with other furnaces: tune-ups are possible; the fuels burn relatively clean and free of sediment; they are relatively low in viscosity and free of ash; and, there are vents and perhaps ducts that can be cleaned. This policy is one that the States have recommended since furnace replacement was first allowed.

2. Unvented Space Heaters

Operation of unvented gas and liquid fueled space heaters can negatively impact indoor air quality through indoor air pollution. Indoor pollutant concentrations resulting from the use of unvented space heaters can vary significantly from house to house depending on the operation of the space heater and the air infiltration/ventilation rates of the residential structure in which it is placed. Poorly adjusted heaters produce substantially greater quantities of carbon monoxide (CO), aldehydes and particulates than properly adjusted units, while inadequate ventilation may result in a rapid buildup of all pollutants including harmful quantities of CO. Even with the IAQ testing done by North Carolina as a guide for our policy, it is still difficult to accurately predict the impact of unvented space heaters on indoor air quality. It is very important to exercise caution in the use of unvented space heaters, since the potential for accumulation of harmful pollutants is clearly evident.

In addition to the production of toxic by-products, unvented space heaters release water vapor equivalent to 8 to 11 gallons of liquid water into the heated space for each million Btu of energy delivered. Water vapor condenses upon cooling to room temperature, creating a source for mold growth and contributing to premature rotting of interior building materials unless adequate ventilation is maintained.

The DOE policy on treatment of unvented space heaters is as follows. In cases where weatherization work takes place on homes with unvented space heaters, local agencies should check to see if a vented space heater can be installed to carry the major heating load. Otherwise the local agency should consider either replacing all the unvented heaters or not weatherizing the house with measures that decrease air infiltration. In cases where replacement is indicated, States should carefully analyze existing conditions to best determine whether to require replacement with the same fuel items. The decision to change fuel types should be on a limited, case-by-case basis.

Current WAP regulations governing weatherization activities require that measures installed in a dwelling unit be selected on the basis of cost-effectiveness, with the most cost-effective installed first. Unvented space heaters have very high efficiency ratings because they discharge their exhaust gases directly into the space being heated rather than outside, allowing the energy embodied in the hot exhaust gases to be released into the heated space. Vented space heaters exhaust combustion products, and considerable amounts of energy, out of the residence, and therefore, are far less energy efficient.

The current WAP regulations are undergoing several changes. One of these changes includes a heightened emphasis on health and safety. The replacement of an unvented space heater with a vented one may not be justified through cost-effective methods in and of itself. However, the potential does exist to combine other weatherization measures and health and safety considerations with vented space heaters as replacements for unvented space heaters. In such instances the heat energy demanded by the structure can be lowered so that total energy costs are less or the same, while the indoor air quality resulting from the use of a vented space heater is

greatly improved. The above considerations must be taken into account in justifying replacement of an unvented space heater with a vented one.

a. Electric Space Heaters

DOE will not permit any WAP-funded weatherization work other than incidental repairs on electric space heaters with DOE funds. (If funds from another source are available, DOE will not preclude use of such a source, but we do not encourage it.) This is because of the high cost of electricity as compared to fossil fuels; the lower output ratings (size); the risk of fire hazards - especially in older homes; and, the inadequate electrical systems in older homes 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 damages that may result.

b. Gas Space Heaters

ANSI Z223.1 contains the following prohibition against installation of unvented gas space heaters: "Unvented space heaters shall not be installed in bedrooms or bathrooms, nor shall they be installed in institutions such as homes for the aged, sanitariums, convalescent homes or orphanages." This prohibition, coupled with the potential for serious indoor air quality and moisture problems, leads DOE to permit replacement of gas space heaters only when the existing ones are in poor mechanical condition or pose health and safety risks for other reasons. (We understand that repair is not generally an option with unvented gas space heaters.) Such replacement should be with another gas space heater. We would expect that such replacements would be with vented systems but are not requiring vents in this interim policy.

c. Kerosene Space Heaters

Because of the potential for serious indoor air quality and moisture problems, the potential fire hazards, and that the user must select the proper grade of kerosene, the DOE position on unvented kerosene space heaters is that local agencies may replace or repair unvented kerosene space heaters only if an acceptable plan is submitted to the applicable State. This plan should consider among other things: The cost-effectiveness, health and safety concerns; the code considerations, if applicable; and, a client education component. Also, such replacements or repairs should be considered only when the kerosene heaters are the only source of heat and no reasonable alternative exists.

IMPLEMENTATION

The information contained in the section entitled, "Weatherization Considerations," and found on pages 35-38 of the space heater report should be understood and addressed by local programs that get involved in space heater repair and replacement. Grantee health and safety policy, especially as it relates to space heater repair and replacement, in compliance with the above guidance, must be explained in the applicable State plan or appropriate amendment in order to

permit Support Office review and approval. Funds to address these items as part of weatherization work will be allowable WAP costs. It is especially important to insure that adequate inspection, safety, liability and insurance procedures exist and be followed. In all cases, an education component for clients should be a part of the space heater work. Further, testing for indoor air quality, especially carbon monoxide levels in homes with unvented space heaters, should be performed. The cost of purchase of the testing device, the mechanical tools necessary to check for indoor air quality and the training of personnel to do the testing are allowable program expenses. These charges may be made to the program support cost category.

RELATED MATERIALS AND DOCUMENTS

August 1, 1991, transmittal of the results of the Indoor Air Quality test component of the North Carolina Audit Field Test.

Analysis of Space Heaters as a Possible Allowable Weatherization Measure (a report).

Space Heater Analysis for WAP

CONSUMER PRODUCT SAFETY COMMISSION PAMPHLETS (CPSC):

Smoke Detectors Can Save Your Life (English and Spanish versions)
What You Should Know About Space Heaters
On the Side of Safety ... CAUTION Choosing and Using Your Gas Space Heater
Product Safety Fact Sheet - No. 98: Electric Space Heaters
Product Safety Fact Sheet - No. 44: Fireplaces
Product Safety Fact Sheet - No. 79: Furnaces
Product Safety Fact Sheet - No. 99: Ground-Fault Circuit Interrupter (GFCI)
Product Safety Fact Sheet - No. 9: Ranges and Ovens
Your Home Fire Safety Checklist
What You Should Know About Combustion Appliances and Indoor Air Pollution

POLICY TRANSMITTAL TO GRANTEES

Support Offices are requested to provide copies of this interim space heater policy to their grantees and to request that grantees, in turn, provide it to subgrantees.

James Gardner, Jr., Acting Director
Weatherization Assistance Programs Division
Office of Grants Management
Conservation and Renewable Energy