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OFFICIAL EMERGENCY ALERT BULLETIN
BULLETIN 97-5

**TO: ALL INSTALLER/TRANSPORTERS, RETAIL DEALERS OF
MANUFACTURED HOMES AND BUILDING CODE OFFICIALS**

FROM: MILLARD D. MACKEY, CFI 
STATE CHIEF DEPUTY FIRE MARSHAL

DATE: OCTOBER 1, 1997

SUBJECT: UTILITY ELECTRICAL WIRING SYSTEM FOR MANUFACTURED HOMES

The Manufactured Housing Division of the State Fire Marshal's Office during recent field investigations found a link between improper wiring to utility service poles and fires which resulted in the destruction of three (3) manufactured homes.

All manufactured homes should possess a three (3) pole, four (4) wire, including ground pursuant to manufacturer installation manuals and Subpart I, Section 3280.801, item c which states the following:

"The provisions of this Standard apply to manufactured homes intended for connection to a wiring system nominally rated 120/240 volts, 3-wire AC, with grounded neutral."

This office found that individuals have attempted to wire manufactured homes as a conventional, permanent dwelling by using only a three (3) wire hook up, without a ground. The neutral wire then becomes energized, causing the electrical system not to be properly grounded. Such improper wiring prevents the breakers from tripping during an overload, resulting in possible electrocution and a potential fire. (see attached diagram)

Though our office realizes that most retail dealers of manufactured homes leave the responsibility of contracting an electrician to the consumer, our office requests that **all retail dealers of manufactured homes and installer/transporters of manufactured homes, make the consumer aware of the potential life safety hazards, electrocution and potential fire, resulting from the above improper wiring.**

Thank you for your assistance.

MDM/dlc

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of the furnace shall be constructed of metal in accordance with §3280.715(a)(1) or shall be listed Class 0 or Class 1 air ducts. (ii) return ducts, except as required by paragraph (a) of this section, shall be constructed of one-inch (nominal) wood boards (flame spread classification of not more than 200), other suitable material no more flammable than one-inch board or in accordance with §3280.715(a)(1). (iii) The interior of combustible ducts shall be lined with noncombustible material at points where there might be danger from incandescent particles dropped through the register or furnace such as directly under floor registers and the bottom return. (iv) Factory made air ducts used for connecting external heating, cooling or combination heating/cooling appliances to the supply system and return air system of a manufactured home shall be listed by a nationally recognized testing agency. Ducts applied to external heating appliances or combination heating/cooling appliances supply system outlets shall be constructed of metal in accordance with §3280.715 (a)(1) or shall be listed Class 0 or Class 1 air ducts for those portions of the duct closer than 2 feet from the outer casing of the appliance. (v) Ducts applied to external appliances shall be resistant to deteriorating environmental effects, including but not limited to ultra violet rays, cold weather, or moisture and shall be resistant to insects and rodents.

(3) *Sizing*. The cross-sectional areas of the return air duct shall not be less than 2 square inches for each 1,000 Btu per hour input rating of the appliance. Dampers shall not be placed in a combination fresh air intake and return air duct so arranged that the required cross-sectional area will not be reduced at all possible positions of the damper.

(4) *Permanent unclosable openings*. Living areas not served by return air ducts or closed off from the return opening of the furnace by doors, sliding partitions, or other means shall be provided with permanent unclosable openings in the doors or separating partitions to allow circulated air to return to the furnace. Such openings may be grilled or louvered. The net free area of each opening shall be not less than 1 square inch for every 5 square feet of total living area closed off from the furnace by the door or partition serviced by that opening. Undercutting doors connecting the closed-off space may be used as a means of providing return air area. However, in the event that doors are undercut, they shall be undercut a minimum of 2 inches and not more than 2½ inches, as measured from the top surface of the floor decking to the bottom of the door [A, October 25, 1994] and no more than one half of the free air area so provided shall be counted as return air area. [H-2-77]

(c) *Joints and seams*. Joints and seams of ducts shall be securely fastened and made substantially airtight. Slip joints shall have a lap of at least 1 inch and shall be individually fastened. Tape or caulking compound may be used for sealing mechanically secure joints. Where used, tape or

caulking compound shall not be subject to deterioration under long exposures to temperatures up to 200° F and to conditions of high humidity, excessive moisture, or mildew. (d) *Supports*. Ducts shall be securely supported.

(e) *Registers or grilles*. Fittings connecting the registers or grilles to the duct system shall be constructed of metal or material which complies with the requirements of Class 1 or 2 ducts under UL 181-Sixth Edition-1984, Factory Made Air Ducts and Connectors. [A, August 11, 1987] Air supply terminal devices (registers) when installed in kitchens, bedrooms, and bathrooms shall be equipped with adjustable closeable dampers. Registers or grilles shall be constructed of metal or conform with the following:

(1) Be made of a material classified 94V-0 or 94V-1 when tested as described in Underwriters' Laboratories, Inc., Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94-Fourth Edition-1991. [A, October 25, 1994][A, August 11, 1987]

(2) Floor registers or grilles shall resist without structural failure a 200 lb. concentrated load on a 2-inch diameter disc applied to the most critical area of the exposed face of the register or grille. For this test the register or grille is to be at a temperature of not less than 165°F and is to be supported in accordance with the manufacturer's instructions.

Subpart I- Electrical Systems [A, October 25, 1994][A, August 11, 1987]

§3280.801 Scope. [A, October 25, 1994] [A, August 11, 1987]

(a) Subpart I of this Standard and Part A of Article 550 of the National Electrical Code (NFPA No. 70-1993) cover the electrical conductors and equipment installed within or on manufactured homes and the conductors that connect manufactured homes to a supply of electricity. [A, October 25, 1994]

(b) In addition to the requirements of this Standard and Article 550 of the National Electrical Code (NFPA No. 70-1993), the applicable portions of other Articles of the National Electrical Code shall be followed covering electrical installations in manufactured homes. Wherever the requirements of this Standard differ from the National Electrical Code, this Standard shall apply. [A, October 25, 1994] [1-1-77]

(c) The provisions of this Standard apply to manufactured homes intended for connection to a wiring system nominally rated 120/240 volts, 3-wire AC, with grounded neutral. [A, October 25, 1994]

(d) All electrical materials, devices, appliances, fittings and other equipment shall be listed or labeled by a nationally recognized testing agency and shall be connected in an approved manner when in service.

DIAGRAM FOR ELECTRICAL UTILITY CONNECTION HOOK UPS FOR
MANUFACTURED HOMES

Figure 1

Proper Electrical
Connection Hook Up

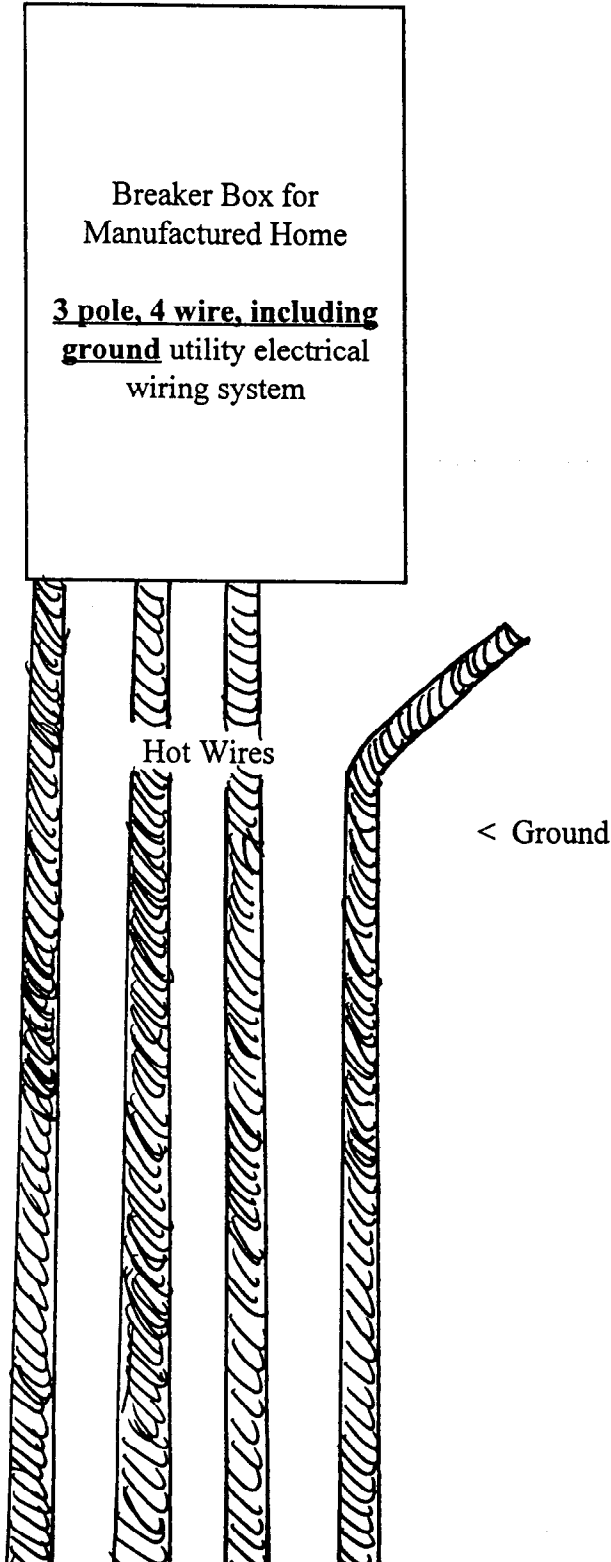


Figure 2

Improper Electrical
Connection Hook Up

