RD AN No.3991 (1924-A)
June 15, 2004

TO: Rural Development State Directors

ATTN: Rural Housing Program Directors
Rural Development Area and Local Offices
State Architects, Engineers, Construction Analysts
and Inspectors

FROM: James C. Alsop ***(Signed by James C. Alsop)***
Acting Administrator
Rural Housing Service

SUBJECT: Thermal Requirements for Manufactured Housing

PURPOSE/INTENDED OUTCOME:

The purpose of this Administrative Notice (AN) is to inform the Rural Development staff of the Uo Value Zones (thermal requirements) in the Federal Manufactured Home Construction and Safety Standards (FMHCSS), commonly called the "HUD Code." The FMHCSS thermal standards are acceptable to Rural Development for new manufactured homes financed by the Agency as clarified in Attachment B. This AN supplements and clarifies the requirements in Rural Development Instruction 1924-A, Exhibit D and HB 1-3550.

COMPARISON WITH PREVIOUS AN:

This is a reissue of RD AN 3837 (1924-A), dated March 26, 2003, which expired March 31, 2004. Minor corrections of the text have been made, but no substantive changes.

BACKGROUND:

On September 2, 1999, the Rural Development amended its thermal requirements for manufactured homes. The review and approval process is now streamlined when a manufactured home has been built for a HUD zone that meets or exceeds

EXPIRATION DATE:
June 30, 2005

FILING INSTRUCTIONS:
Preceding RD Instruction 1924-A

Rural Development's thermal requirements for the county in which the home is to be located. This reduces the burden on Rural Development field personnel, the manufactured housing industry, and most importantly Rural Development customers. In assuring the government's security interest, as well as serving our customer's needs, it is important that the thermal characteristics of the dwelling reflect the specific climate in which it is located.

New manufactured homes built to the FMHCSS are provided with a Comfort Heating and Cooling Certificate. The Certificate (which may be combined with the Data Plate) is affixed in a permanent manner near the main electrical panel or other readily accessible and visible location inside the unit. The Certificate specifies the FMHCSS Uo Value Zone that the manufactured home complies with (see the circled area on Attachment A). This will be either a Uo Value Zone 1, 2, or 3. Attachment A is an example of a Data Plate containing the Comfort Heating and Cooling Certificate. The U/O Value Zone Map on the certificate does not apply to Rural Development.

IMPLEMENTATION RESPONSIBILITIES:

The practice of submitting thermal design data on a particular manufactured home model to Rural Development for review and approval, and installation of a separate Rural Development thermal sticker in the unit was discontinued with a Special Procedure Notice issued on October 4,1999.

Attachment B to this AN lists the FMHCSS Uo value zones that correspond to the Rural Development climatic zones for each State by county. These are the FMHCSS Uo Value Zones acceptable to Rural Development for each State or county within a State. Rural Development field offices will ensure that existing and potential manufactured housing dealer-contractors receive Attachment B.

During the initial meeting with the applicant, Rural Development staff will indicate which FMHCSS Uo Value Zone is acceptable to Rural Development for the county in which the home will be installed. When the manufactured home is delivered to the site, Rural Development will verify that the unit is acceptable by inspecting the Comfort Heating Certification.

Please direct all questions pertaining to this AN to Baxter J. Hill, Senior Architect, at (202) 720-1499, email: baxter.hill@usda.gov or Larry Fleming, Senior Architect, at (202) 720-8547, email: larry.fleming@usda.gov of RHS Program Support Staff.

Attachment

ATTACHMENT A

Manufacturer Address

Plant Number

Date of Manufacture	HUD Label No.(s)

Manufacturer's Serial Number and Model Unit Designation

Design Approval by (D.A.P.I.A.)

This manufactured home is designed to comply with the federal manufactured home construction and safety standards in force at time of manufacture.
(For additional information, consult owner's manual.)

The factory installed equipment includes:

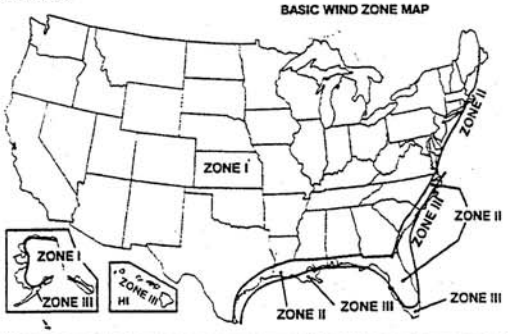
Equipment	Manufacturer	Model Designation
For heating		
For air cooling		
For cooking		
Refrigerator		
Water Heater		
Washer		
Clothes Dryer		
Dishwasher		
Garbage Disposal		
Fireplace		

HOME CONSTRUCTED FOR ☐ Zone I ☐ Zone II ☐ Zone III

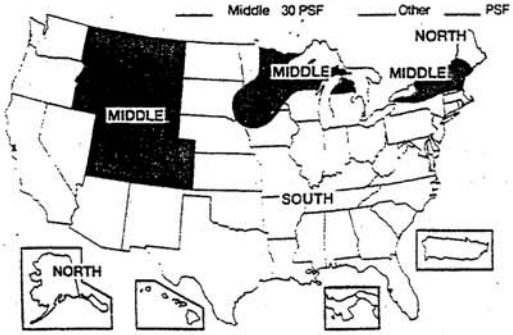
This home has not been designed for the higher wind pressure and anchoring provisions required for ocean/coastal areas and should not be located within 1500' of the coastline in Wind Zones II and III, unless the home and its anchoring and foundation system have been designed for the increased requirements specified for Exposure D in ANSI/ASCE 7-88.

This home has___has not___been equipped with storm shutters or other protective coverings for windows and exterior door openings. For homes designed to be located in Wind Zones II and III, which have not been provided with shutters or equivalent covering devices, it is strongly recommended that the home be made ready to be equipped with these devices in accordance with the method recommended in manufacturers printed instructions.

BASIC WIND ZONE MAP



DESIGN ROOF LOAD ZONE MAP ___ North 40 PSF ___ South 20 PSF ___ Middle 30 PSF ___ Other ___ PSF



Attachment A

COMFORT HEATING

This manufactured home is thermally insulated to conform with the requirements of the federal manufactured home construction and safety standards for all locations within U/O value zone ___. (See map at bottom)
Heating equipment manufacturer and model (see list at left).
The above heating equipment has the capacity to maintain an average 70° F temperature in this home at outdoor temperatures of ___°F.
To maximize furnace operating economy, and to conserve energy, it is recommended that this home be installed where the outdoor winter design temperature (97½%) is not higher than ___ degrees Fahrenheit.
The above information has been calculated assuming a maximum wind velocity of 15 mph at standard atmospheric pressure.

COMFORT COOLING

☐ **Air conditioner provided at factory (Alternate I)**

Air conditioner manufacturer and model (see list at left).

Certified capacity___B.T.U./hour in accordance with the appropriate air conditioning and refrigeration institute standards.
The central air conditioning system provided in this home has been sized assuring an orientation of the front (hitch end) of the home facing ___. On this basis the system is designed to maintain an indoor temperature of 75° F when outdoor temperatures are ___°F dry bulb and ___°F wet bulb.

The temperature to which this home can be cooled will change depending upon the amount of exposure of the windows of this home to the sun's radiant heat. Therefore, the home's heat gains will vary dependent upon its orientation to the sun and any permanent shading provided. Information concerning the calculation of cooling loads at various locations, window exposures and shadings are provided in Chapter 22 of the 1989 edition of the ASHRAE Handbook of Fundamentals.

Information necessary to calculate cooling loads at various locations and orientations is provided in the special comfort cooling information provided with this home.

☐ **Air conditioner not provided at factory (Alternate II)**
The air distribution system of this home is suitable for the installation of central air conditioning.

The supply air distribution system installed in this home is sized for a manufactured home central air conditioning system of up to ___ B.T.U./hr. rated capacity which are certified in accordance with the appropriate air conditioning and refrigeration institute standards, when the air circulators of such air conditioners are rated at 0.3 inch water column static pressure or greater for the cooling air delivered to the manufactured home supply air duct system.
Information necessary to calculate cooling loads at various locations and orientations is provided in the special comfort cooling information provided with this manufactured home.

☐ **Air conditioning not recommended (Alternate III)**
The air distribution system of this home has not been designed in anticipation of its use with a central air conditioning system.

To determine the required capacity of equipment to cool a home efficiently and economically, a cooling load (heat gain) calculation is required. The cooling load is dependent on the orientation, location and the structure of the home. Central air conditioners operate most efficiently and provide the greatest comfort when their capacity closely approximates the calculated cooling load. Each home's air conditioner should be sized in accordance with Chapter 22 of the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Handbook of Fundamentals 1989 edition, once the location and orientation are known.

INFORMATION PROVIDED BY THE MANUFACTURER NECESSARY TO CALCULATE SENSIBLE HEAT GAIN

Walls (without windows and doors)	"U"___
Ceilings and roofs of light color	"U"___
Ceilings and roofs of dark color	"U"___
Floors	"U"___
Air ducts in floor	"U"___
Air ducts in ceiling	"U"___
Air ducts installed outside the home	"U"___

The following are the duct areas in this home

Air ducts in floor	___ sq. ft.
Air ducts in ceiling	___ sq. ft.
Air ducts outside the home	___ sq. ft.

U/O VALUE ZONE MAP

ATTACHMENT B

RURAL DEVELOPMENT

THERMAL REQUIREMENTS FOR MANUFACTURED HOMES

BACKGROUND: The minimum thermal requirement for new manufactured homes acceptable to Rural Development is the Federal Manufactured Home Construction and Safety Standard (FMHCSS) Uo Value Zone(s) indicated on the Comfort Heating and Cooling Certificate for the following States:

NOTE: For a FMHCSS Uo Value Zone 1 or higher, higher means a FMHCSS Uo Value Zone 2 or 3. For a FMHCSS Uo Value Zone 2 or higher, higher means a FMHCSS Uo Value Zone 3.

ALABAMA

FMHCSS Uo Value Zone 2 or higher is acceptable for all counties in the State.

ALASKA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

ARIZONA

FMHCSS Uo Value Zone 2 or higher is acceptable for the following counties:

Cochise	Greenlee	Mohave	Santa Cruz
Gila	La Paz	Pima	Yuma
Graham	Maricopa	Pinal	

FMHCSS Uo Value Zone 3 is acceptable for all other counties:

ARKANSAS

FMHCSS Uo Value Zone 2 or higher is acceptable for all counties in the State.

CALIFORNIA

FMHCSS Uo Value Zone 3 is acceptable for the following counties:

Alpine	Modoc	Nevada	Sierra
Lassen	Mono	Plumas	Siskiyou

FMHCSS Uo Value Zone 2 or higher is acceptable for all other counties:

COLORADO

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

DELAWARE / MARYLAND

FMHCSS Uo Value Zone 3 is acceptable for all counties in both States.

FLORDIA / VIRGIN ISLANDS

FMHCSS Uo Value Zone 1 or higher is acceptable for the following Florida counties and the Virgin Islands:

Brevard	Hardee	Levy	Palm Beach
Broward	Hendry	Manatee	Pasco
Charlotte	Hernado	Marion	Pinellas
Citrus	Highlands	Martin	Polk
Collier	Hillborough	Monroe	Sarasota
Dade	Indian River	Okeechobee	Seminole
DeSoto	Lake	Orange	St Lucia
Glades	Lee	Osceola	Sumter
			Vousia

FMHCSS Uo Value Zone 2 or higher is acceptable for all other counties:

GEORGIA

FMHCSS Uo Value Zone 2 or higher is acceptable for all counties in the State.

HAWAII

FMHCSS Uo Value Zone 1 or higher is acceptable for all counties in the State.

IDAHO

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

ILLINOIS

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

INDIANA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

IOWA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

KANSAS

FMHCSS Uo Value Zone 2 or higher is acceptable for the following counties:

Barber	Cowley	Harper	Neosho
Chautauqua	Crawford	Labette	Sumner
Cherokee	Elk	Montgomery	Wilson
Comanche			

FMHCSS Uo Value Zone 3 is acceptable for all other counties:

KENTUCKY

FMHCSS Uo Value Zone 2 or higher is acceptable for all counties in the State.

LOUISIANA

FMHCSS Uo Value Zone 2 or higher is acceptable for all counties in the State.

MAINE

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

MASSACHUSETTS / RHODE ISLAND / CONNECTICUT

FMHCSS Uo Value Zone 3 is acceptable for all counties in the three States.

MICHIGAN

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

MINNESOTA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

MISSISSIPPI

FMHCSS Uo Value Zone 2 or higher is acceptable for all counties in the State.

MISSOURI

FMHCSS Uo Value Zone 2 or higher is acceptable for the following counties:

Barry	Jasper	Newton	Scott
Butler	McDonald	Oregon	Stoddard
Cape	Mississippi	Ozark	Stone
Girardeau	New Madrid	Pemiscot	Taney
Dunklin		Ripley	
Howell			

FMHCSS Uo Value Zone 3 is acceptable for all other counties:

MONTANA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

NEBRASKA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

NEVADA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

NEW JERSEY

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

NEW MEXICO

FMHCSS Uo Value Zone 2 or higher is acceptable for the following counties:

Bernalillo	Eddy	Lea	Quay
Chaves	Grant	Lincoln	Roosevelt
Curry	Guadalupe	Luna	Sierra
De Baca	Hidalgo	Otero	Socorro
Dona Ana			

FMHCSS Uo Value Zone 3 is acceptable for all other counties:

NEW YORK

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

NORTH CAROLINA

FMHCSS Uo Value Zone 2 or higher is acceptable for all counties in the State.

NORTH DAKOTA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

OHIO

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

OKLAHOMA

FMHCSS Uo Value Zone 3 is acceptable for the following counties:

Beaver	Cimarron	Texas

FMHCSS Uo Value Zone 2 or higher is acceptable for all other counties:

OREGON

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

PENNSYLVANIA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

PUERTO RICO

FMHCSS Uo Value Zone 1 or higher is acceptable for all of Puerto Rico.

SOUTH CAROLINA

FMHCSS Uo Value Zone 2 or higher is acceptable for all counties in the State.

SOUTH DAKOTA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

TENNESSEE

FMHCSS Uo Value Zone 2 or higher is acceptable for all counties in the State.

TEXAS

FMHCSS Uo Value Zone 1 or higher is acceptable for the following counties:

Cameron	Kenedy	Starr	Zapata
Hidalgo	Kleberg	Willacy	

FMHCSS Uo Value Zone 2 or higher is acceptable for all other counties:

UTAH

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

VERMONT / NEW HAMPSHIRE

FMHCSS Uo Value Zone 3 is acceptable for all counties in both States.

VIRGINIA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

WASHINGTON

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

WEST VIRGINIA

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

WISCONSIN

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.

WYOMING

FMHCSS Uo Value Zone 3 is acceptable for all counties in the State.