

RD AN No. 4772 (1924-A)
August 4, 2014

TO: Rural Development State Directors

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

FROM: Tony Hernandez /s/ **Tony Hernandez**
Administrator
Housing and Community Programs

SUBJECT: Thermal standards for manufactured housing

PURPOSE/INTENDED OUTCOME:

The purpose of this Administrative Notice (AN) is to inform the Rural Development staff of the thermal standards for manufactured homes. For new manufactured homes, Rural Development continues to follow the requirements of the Department of Housing and Urban Development's Federal Manufactured Home Construction and Safety Standards (FMHCSS), commonly called the "HUD Code".

This AN supplements and clarifies the requirements in RD Instruction 1924-A, Exhibit D and is considered the minimum standards for thermal construction of newly manufactured homes built with Rural Development finances.

EXPIRATION DATE:
July 31, 2015

FILING INSTRUCTIONS:
Preceding RD Instruction 1924-A

COMPARISON WITH PREVIOUS AN:

This AN revises and replaces RD AN No 4519 (1924-A) dated June 24, 2010, which expired June 30, 2011. The AN is effective until the expiration date or until the Department of Energy establishes new standards for energy efficiency on manufactured housing as required by Section 413 of the Act, whichever is earlier. This AN also eliminates the content concerning the Energy Independence and Security Act of 2007(EISA). Adoption of a newer code is in process. The EISA of 2007 will be addressed in a new AN. In the latter case, additional guidance will be provided.

BACKGROUND:

The construction standards for manufactured homes, set forth by the FMHCSS, have not changed. New manufactured homes built to the FMHCSS are provided with a Comfort Heating and Cooling Certificate. This 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 U/O Value Zone that the manufactured home complies with (see the circled area on Attachment A). This will be either a U/O 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. Rural Development will continue to use Attachment B.

IMPLEMENTATION RESPONSIBILITIES:

For new construction of projects funded by Rural Housing Service, other than manufactured homes, the thermal standards are determined by the IECC-2006.

For manufactured homes, Attachment B to this AN lists the FMHCSS U/O value zones that correspond to the Rural Development climatic zones for each State by county. These are the FMHCSS U/O 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 U/O 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 and Cooling Certificate.

Please direct all questions pertaining to this AN to William Downs, Architect, at (202) 720-1499, email: william.downs@wdc.usda.gov of the Rural Housing Service Program Support Staff.

Attachments: A & B

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



COMFORT HEATING

This manufactured home has been 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 (97 1/2%) 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 assuming an orientation of the front (hitch end) of the home facing _____.

On this basis the system is designed to maintain an indoor winter design 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) °F _____
- Ceilings and roofs of light color °F _____
- Ceilings and roofs of dark color °F _____
- Floors °F _____
- Air ducts in floor °F _____
- Air ducts in ceiling °F _____
- Air ducts installed outside the home °F _____

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



FD-602 (Rev. 0-81) (REV. 10/91)

ATTACHMENT B

**RURAL DEVELOPMENT
THERMAL REQUIREMENTS
FOR
MANUFACTURED HOMES**

BACKGROUND: The minimum thermal requirement for new manufactured homes acceptable to Rural Development is the U.S. Department of Housing and Urban Development Federal Manufactured Home Construction and Safety Standard (FMHCSS) U/O Value Zone(s) indicated on the Comfort Heating and Cooling Certificate for the following States:

NOTE: For a FMHCSS U/O Value Zone 1 or higher, higher means a FMHCSS U/O Value Zone 2 or 3. For a FMHCSS U/O Value Zone 2 or higher, higher means a FMHCSS U/O Value Zone 3.

ALABAMA

FMHCSS U/O Value Zone 1 or higher is acceptable for all counties in the State.

ALASKA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

ARIZONA

FMHCSS U/O 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 U/O Value Zone 3 is acceptable for all other counties.

ARKANSAS

FMHCSS U/O Value Zone 2 or higher is acceptable for all counties in the State.

CALIFORNIA

FMHCSS U/O Value Zone 2 is acceptable for the following counties:

Alpine	Modoc	Nevada	Sierra
Lassen	Mono	Plumas	Siskiyou

FMHCSS U/O Value Zone 2 or higher is acceptable for all other counties.

COLORADO

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

DELAWARE / MARYLAND

FMHCSS U/O Value Zone 3 is acceptable for all counties in both States.

FLORIDA / VIRGIN ISLANDS

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

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

FMHCSS U/O Value Zone 1 or higher is acceptable for all other counties.

GEORGIA

FMHCSS U/O Value Zone 1 or higher is acceptable for all counties in the State.

HAWAII

FMHCSS U/O Value Zone 1 or higher is acceptable for all counties in the State.

IDAHO

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

ILLINOIS

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

INDIANA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

IOWA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

KANSAS

FMHCSS U/O 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 U/O Value Zone 2 is acceptable for all other counties.

KENTUCKY

FMHCSS U/O Value Zone 2 or higher is acceptable for all counties in the State.

LOUISIANA

FMHCSS U/O Value Zone 1 or higher is acceptable for all counties in the State.

MAINE

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

MASSACHUSETTS / RHODE ISLAND / CONNECTICUT

FMHCSS U/O Value Zone 3 is acceptable for all counties in the three States.

MICHIGAN

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

MINNESOTA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

MISSISSIPPI

FMHCSS U/O Value Zone 1 or higher is acceptable for all counties in the State.

MISSOURI

FMHCSS U/O 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 U/O Value Zone 2 is acceptable for all other counties.

MONTANA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

NEBRASKA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

NEVADA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

NEW JERSEY

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

NEW MEXICO

FMHCSS U/O 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 U/O Value Zone 2 is acceptable for all other counties.

NEW YORK

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

NORTH CAROLINA

FMHCSS U/O Value Zone 2 or higher is acceptable for all counties in the State.

NORTH DAKOTA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

OHIO

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

OKLAHOMA

FMHCSS U/O Value Zone 2 is acceptable for the following counties:

Beaver	Cimarron	Texas
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FMHCSS U/O Value Zone 2 or higher is acceptable for all other counties.

OREGON

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

PENNSYLVANIA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

PUERTO RICO

FMHCSS U/O Value Zone 1 or higher is acceptable for all of Puerto Rico.

SOUTH CAROLINA

FMHCSS U/O Value Zone 1 or higher is acceptable for all counties in the State.

SOUTH DAKOTA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

TENNESSEE

FMHCSS U/O Value Zone 2 or higher is acceptable for all counties in the State.

TEXAS

FMHCSS U/O Value Zone 1 or higher is acceptable for the following counties:

Cameron	Kenedy	Starr	Zapata
Hidalgo	Kleberg	Willacy	

FMHCSS U/O Value Zone 1 or higher is acceptable for all other counties.

UTAH

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

VERMONT / NEW HAMPSHIRE

FMHCSS U/O Value Zone 3 is acceptable for all counties in both States.

VIRGINIA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

WASHINGTON

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

WEST VIRGINIA

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

WISCONSIN

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.

WYOMING

FMHCSS U/O Value Zone 3 is acceptable for all counties in the State.