

between the duct and the insulation, heat loss/gain need not be calculated if the cavity in which the duct is located is assumed to be at living space temperature. The average temperature inside the supply duct, including ducts installed outside the manufactured home, shall be assumed to be 130 F for purposes of calculation of heat loss and 60 F for heat gain.

(g) *Return air cavities.* Cavities used as return air plenums shall be considered to be at living space temperature.

[40 FR 58752, Dec. 18, 1975. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 78 FR 73984, Dec. 9, 2013]

§ 3280.510 Heat loss certificate.

The manufactured home manufacturer shall permanently affix the following "Certificate" to an interior surface of the home that is readily visible to the homeowner. The "Certificate" shall specify the following:

(a) *Heating zone certification.* The design zone at which the manufactured home heat loss complies with § 3280.506(a).

(b) *Outdoor certification temperature.* The lowest outdoor temperature at which the installed heating equipment will maintain a 70 °F temperature inside the home without storm sash or insulating glass for Zones 1 and 2, and with storm sash or insulating glass for Zone 3 and complying with § 3280.508 and § 3280.509.

(c) *Operating economy certification temperature.* The temperature to be specified for operating economy and energy conservation shall be 20 °F or 30% of the design temperature difference, whichever is greater, added to the temperature specified as the heating system capacity certification temperature without storm windows or insulating glass in Zones 1 and 2 and with storm windows or insulating glass in Zone 3. Design temperature difference is 70° minus the heating system capacity certification temperature in degrees Fahrenheit.

HEATING CERTIFICATE

Home Manufacturer _____
Plant Location _____
Home Model _____

(Include Uo Value Zone Map)

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 Uo Value Zone ____.

Heating Equipment Manufacturer _____
Heating Equipment Model _____

The above heating equipment has the capacity to maintain an average 70F temperature in this home at outdoor temperatures of [see paragraph (b) of this section] 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 [see paragraph (c) of this section] F degrees Fahrenheit.

The above information has been calculated assuming a maximum wind velocity of 15 MPH at standard atmospheric pressure.

(d) The following additional statement must be provided on the heating certificate and data plate required by § 3280.5 when the home is built with a vapor retarder of not greater than one perm (dry cup method) on the exterior side of the insulation: "This home is designed and constructed to be sited only in humid or fringe climate regions as shown on the Humid and Fringe Climate Map." A reproduction of the Humid and Fringe Climate Map in § 3280.504 is to be provided on the heating certificate and data plate. The map must be not less than 3½ inch × 2¼ inch in size and may be combined with the Uo Value Zone Map for Manufactured Housing in § 3280.506.

[40 FR 58752, Dec. 18, 1975. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 58 FR 55011, Oct. 25, 1993; 70 FR 72048, Nov. 30, 2005]

§ 3280.511 Comfort cooling certificate and information.

(a) The manufactured home manufacturer shall permanently affix a "Comfort Cooling Certificate" to an interior surface of the home that is readily visible to the home owner. This certificate may be combined with the heating certificate required in § 3280.510. The manufacturer shall comply with one of the following three alternatives in providing the certificate and additional information concerning the cooling of the manufactured home:

(1) *Alternative I.* If a central air conditioning system is provided by the home

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manufacturer, the heat gain calculation necessary to properly size the air conditioning equipment shall be in accordance with procedures outlined in chapter 22 of the 1989 ASHRAE Handbook of Fundamentals, with an assumed location and orientation. The following shall be supplied in the Comfort Cooling Certificate:

Air Conditioner Manufacturer _____
Air Conditioner Model _____

Certified Capacity _____ BTU/Hr. in accordance with the appropriate Air Conditioning and Refrigeration Institute Standards

The central air conditioning system provided with this home has been sized, assuming an orientation of the front (hitch) end of the home facing _____ and is designed on the basis of a 75 °F indoor temperature and an outdoor temperature of _____ °F dry bulb and _____ °F wet bulb.

EXAMPLE ALTERNATE I

COMFORT COOLING CERTIFICATE

Manufactured Home Mfg _____
Plant Location _____
Manufactured Home Model _____
Air Conditioner Manufacturer _____

Certified Capacity _____ BTU/Hr. in accordance with the appropriate Air Conditioning and Refrigeration Institute Standards.

The central air conditioning system provided with 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 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 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.

(2) *Alternative 2.* For each home suitable for a central air cooling system, the manufacturer shall provide the following statement: "This air distribution system of this home is suitable for the installation of a central air conditioning system."

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EXAMPLE ALTERNATE 2

COMFORT COOLING CERTIFICATE

Manufactured Home Manufacturer _____
Plant Location _____
Manufactured Home Model _____

This 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 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.

(3) *Alternative 3.* If the manufactured home is not equipped with an air supply duct system, or if the manufacturer elects not to designate the home as being suitable for the installation of a central air conditioning system, the manufacturer shall provide the following statement: "This air distribution system of this home has not been designed in anticipation of its use with a central air conditioning system."

EXAMPLE ALTERNATE 3

COMFORT COOLING CERTIFICATE

Manufactured Home Mfg _____
Plant Location _____
Manufactured Home Model _____

The air distribution system of this home has not been designed in anticipation of its use with a central air conditioning system.

(b) For each home designated as suitable for central air conditioning the manufacturer shall provide the maximum central manufactured home air conditioning capacity certified in accordance with the ARI Standard 210/240-89 Unitary Air-Conditioning and Air-Source Heat Pump Equipment and in accordance with §3280.715(a)(3). If the capacity information provided is based on entrances to the air supply duct at other than the furnace plenum, the manufacturer shall indicate the correct supply air entrance and return air exit locations.

(c) *Comfort cooling information.* For each manufactured home designated, either “suitable for” or “provided with” a central air conditioning system, the manufacturer shall provide comfort cooling information specific to the manufactured home necessary to complete the cooling load calculations. The comfort cooling information shall include a statement to read as follows:

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

Information necessary to calculate duct areas.

[40 FR 58752, Dec. 18, 1975. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 58 FR 55012, Oct. 25, 1993]

Subpart G—Plumbing Systems

§ 3280.601 Scope.

Subpart G of this standard covers the plumbing materials, fixtures, and equipment installed within or on manufactured homes. It is the intent of this subpart to assure water supply, drain, waste and vent systems which permit satisfactory functioning and provide for health and safety under all conditions of normal use.

§ 3280.602 Definitions.

The following definitions are applicable to subpart G only:

Accessible, when applied to a fixture, connection, appliance or equipment, means having access thereto, but

which may require removal of an access panel or opening of a door.

Air gap (water distribution system) means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, water supplied appliances, or other device and the flood level rim of the receptacle.

Backflow means the flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from any source or sources other than its intended sources.

Backflow connection means any arrangement whereby backflow can occur.

Backflow preventer means a device or means to prevent backflow.

Branch means any part of the piping system other than a riser, main or stack.

Common vent means a vent connecting at the junction of fixture drains and serving as a vent for more than one fixture.

Continuous vent means a vertical vent that is a continuation of the drain to which it connects.

Continuous waste means a drain from two or more fixtures connected to a single trap.

Critical level means a point established by the testing laboratory (usually stamped on the device by the manufacturer) which determines the minimum elevation above the flood level rim of the fixture or receptacle served on which the device may be installed. When a backflow prevention device does not bear a critical level marking, the bottom of the vacuum breaker, combination valve, or of any such approved or listed device shall constitute the critical level.

Cross connection means any physical connection or arrangement between two otherwise separate systems or sources, one of which contains potable water and the other either water, steam, gas or chemical of unknown or questionable safety whereby there may be a flow from one system or source to the other, the direction of flow depending on the pressure differential between the two systems.