No. 8 copper minimum, or equal. The bonding conductor shall be routed so as not to be exposed to physical damage. Protection can be afforded by the configuration of the chassis.

(3) Metallic gas, water and waste pipes and metallic air-circulating ducts shall be considered bonded if they are connected to the terminal on the chassis (see §3280.809) by clamps, solderless connectors, or by suitable grounding-type straps.

(4) Any metallic roof and exterior covering shall be considered bonded if (i) the metal panels overlap one another and are securely attached to the wood or metal frame parts by metallic fasteners, and (ii) if the lower panel of the metallic exterior covering is secured by metallic fasteners at a cross member of the chassis by two metal straps per manufactured home unit or section at opposite ends. The bonding strap material shall be a minimum of 4 inches in width of material equivalent to the skin or a material of equal or better electrical conductivity. The straps shall be fastened with paint-penetrating fittings (such as screws and star washers or equivalent).


§ 3280.810 Electrical testing.

(a) Dielectric strength test. The wiring of each manufactured home shall be subjected to a 1-minute, 900 to 1079 volt dielectric strength test (with all switches closed) between live parts and the manufactured home ground, and neutral and the manufactured home ground. Alternatively, the test may be performed at 1080 to 1250 volts for 1 second. This test shall be performed after branch circuits are complete and after fixtures or appliances are installed. Fixtures or appliances which are listed shall not be required to withstand the dielectric strength test. Each manufactured home shall be subject to:

(b) Each manufactured home shall be subject to:

(1) A continuity test to assure that metallic parts are properly bonded;

(2) Operational test to demonstrate that all equipment, except water heaters, electric furnaces, dishwashers, clothes washers/dryers, and portable
§ 3280.811 Calculations.

(a) The following method shall be employed in computing the supply cord and distribution-panelboard load for each feeder assembly for each manufactured home and shall be based on a 3-wire, 120/240 volt supply with 120 volt loads balanced between the two legs of the 3-wire system. The total load for determining power supply by this method is the summation of:

(1) Lighting and small appliance load as calculated below:

- Lighting volt-amperes: Length time width of manufactured home (outside dimensions exclusive of coupler) times 3 volt-amperes per square foot; e.g. Length $\times$ width $\times$ 3 = lighting volt-amperes.

- Small appliance volt-amperes: Number of circuits $\times$ 1,500 volt-amperes for each 20-ampere appliance receptacle circuit (see definition of "Appliance Portable" with Note); e.g. Number of circuits $\times$ 1,500 = small appliance volt-amperes.

- Total volts-amperes: Lighting volt-amperes plus small appliance = total volt-amperes.

- First 3,000 total volts-amperes at 100% plus remainder at 35% = total load for lighting and small appliance load.

(b) The following is an optional method of calculation for lighting and appliance loads for manufactured homes served by single 3-wire 120/240 volt set of feeder conductors with an ampacity of 100 or greater. The total load for determining the feeder ampacity may be computed in accordance with the following table instead of the method previously specified. Feeder conductors whose demand load is determined by this optional calculation are permitted to have the neutral load

\[
\begin{array}{c|c}
\text{Nameplate rating (in watts)} & \text{Use (in watts)} \\
\hline
10,000 or less & 80 percent of rating. \\
10,001 to 12,500 & 8,000. \\
12,501 to 15,000 & 8,400. \\
15,001 to 17,500 & 8,800. \\
17,501 to 20,000 & 9,200. \\
20,001 to 22,500 & 9,600. \\
22,501 to 25,000 & 10,000. \\
\end{array}
\]

(6) If outlets or circuits are provided for other than factory-installed appliances, include the anticipated load. The following example is given to illustrate the application of this Method of Calculation:

Example: A manufactured home is 70$\times$10 feet and has two portable appliance circuits, a 1000 volt-ampere 240 volt heater, a 200 volt-ampere 120 volt exhaust fan, a 400 volt-ampere 120 volt dishwasher and a 7000 volt-ampere electric range.