wires, as the color coding may be obliterated by the paint.

§ 3280.815 Polarization.

(a)(1) Except as provided in paragraph (a)(2) of this section, the white conductor must be employed for the grounded (neutral) circuit conductors only and must be connected to the white terminal or lead on receptacle outlets and fixtures. The grounded conductor must be the unswitched wire in switched circuits.

(2) A cable containing an insulated conductor with a white or natural gray outer finish or a marking of three continuous white stripes may be used for single-pole, three-way, or four-way switch loops, where this conductor is used for the supply to the switch, but not as a return conductor from the switch to the switched outlet. In these applications, the conductor with white or natural gray insulation or with three continuous white stripes must be permanently re-identified to indicate its use by painting or other effective means at its terminations and at each location where the conductor is visible and accessible.

(b) If the identified (white) conductor of a cable is used for other than grounded conductors or for other than switch loops as explained above (for a 240 volt circuit for example), the conductor shall be finished in a color other than white at each outlet where the conductors are visible and accessible.

(c) Green-colored wires or green with yellow stripe shall be used for grounding conductors only.

[40 FR 58752, Dec. 18, 1975. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 58 FR 55021, Oct. 25, 1993; 78 FR 73992, Dec. 9, 2013]

§ 3280.816 Examination of equipment for safety.

The examination or inspection of equipment for safety, according to this standard, shall be conducted under uniform conditions and by organizations properly equipped and qualified for experimental testing, inspections of the run of goods at factories, and service-value determinations through field examinations.

Subpart J—Transportation

§ 3280.901 Scope.

Subpart J of this standard covers the general requirement for designing the structure of the manufactured home to fully withstand the adverse effects of transportation shock and vibration without degradation of the integrated structure or of its component parts and the specific requirements pertaining to the transportation system and its relationship to the structure.

§ 3280.902 Definitions.

(a) *Chassis* means the entire transportation system comprising the following subsystems: drawbar and coupling mechanism, frame, running gear assembly, and lights.

(b) *Drawbar and coupling mechanism* means the rigid assembly, (usually a rigid substructure) upon which is mounted a coupling mechanism, which connects the manufactured home's frame to the towing vehicle.

(c) *Frame* means the fabricated rigid substructure which provides considerable support to the affixed manufactured home structure both during transport and on-site; and also provides a platform for securement of the running gear assembly, the drawbar and coupling mechanism.

(d) *Running gear assembly* means the subsystem consisting of suspension springs, axles, bearings, wheels, hubs, tires, and brakes, with their related hardware.

(e) *Lights* means those safety lights and associated wiring required by applicable U.S. Department of Transportation regulations.

(f) *Transportation system*, (Same as chassis, above).

(g) *Highway*, includes all roads and streets to be legally used in transporting the manufactured home.

[40 FR 58752, Dec. 18, 1975. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 47 FR 28093, June 29, 1982; 86 FR 2523, Jan. 12, 2021]

§ 3280.903 General requirements for designing the structure to withstand transportation shock and vibration.

(a) *General.* The manufactured home and its transportation system (as defined in § 3280.902(f)) must withstand

the effects of highway movement such that the home is capable of being transported safely and installed as a habitable structure. Structural, plumbing, mechanical, and electrical systems must be designed to function after setup. The home must remain weather protected during the transportation sequence to prevent internal damage.

(b) *Testing or analysis requirements.* Suitability of the transportation system and home structure to withstand the effects of transportation must be permitted to be determined by testing, or engineering analysis, or a combination of the two as required by paragraphs (b)(1) and (2) of this section.

(1) *Road tests.* Tests must be witnessed by an independent registered professional engineer or architect, manufacturer's IPIA or DAPIA, or by a recognized testing organization. Such testing procedures must be part of the manufacturer's approved design.

(2) *Engineering analysis.* Engineering analysis methods based on the principles of mechanics and/or structural engineering may be used to substantiate the adequacy of the transportation system to withstand in-transit loading conditions. As transportation loadings are typically critical in the longitudinal direction, analysis should, in particular, provide emphasis on design of longitudinal structural components of the manufactured home (*e.g.*, main chassis girder beams, sidewalls, and rim joists, etc.). Notwithstanding, all structural elements necessary to the structural integrity of the manufactured home during in-transit loading are also to be evaluated (*e.g.,* transverse chassis members and floor framing members, etc.).

(i)(A) The summation of the design loads in paragraphs (b)(2)(i)(A)(*1*) through (*3*) of this section may be used to determine the adequacy of the chassis in conjunction with the manufactured home structure to resist in-transit loading:

(*1*) Dead load, the vertical load due to the weight of all structural and nonstructural components of the manufactured home at the time of shipment.

(*2*) Floor load, a minimum of 3 pounds per square foot.

(*3*) Dynamic loading factor, (0.25)[(b2iA) + (b2iB)].

(B) However, the in-transit design loading need not exceed twice the dead load of the manufactured home.

(ii) To determine the adequacy of individual longitudinal structural components to resist the in-transit design loading, a load distribution based on the relative flexural rigidity and shear stiffness of each component may be utilized. For the purpose of loading distribution, the sidewall may be considered to be acting as a ''deep beam'' in conjunction with other load carrying elements in determining the relative stiffness of the integrated structure. Further, by proper pre-cambering of the chassis assembly, additional loading may be distributed to the chassis, and the remaining loading may be distributed to each of the load carrying members by the relative stiffness principle.

(iii) The analysis is also to include consideration for:

(A) Location of openings in the sidewall during transport and, when appropriate,

provisions for reinforcement of the structure and/or chassis at the opening.

(B) Sidewall component member sizing and joint-splice analysis (*i.e.*, top and bottom plates, etc.), and connections between load carrying elements.

[86 FR 2523, Jan. 12, 2021]

§ 3280.904 Specific requirements for designing the transportation system.

(a) *General.* The transportation system must be designed and constructed as an integrated unit which is safe and suitable for its specified use. In operation, the transportation system must effectively respond to the control of the towing vehicle tracking and braking, while traveling at applicable highway speeds and in normal highway traffic conditions.

(b) *Specific requirements*—(1) *Drawbar.* The drawbar must be constructed of sufficient strength, rigidity, and durability to safely withstand those dynamic forces experienced during highway transportation. It must be securely fastened to the manufactured home substructure.

(2) *Coupling mechanism.* The coupling mechanism (which is usually of the socket type) must be securely fastened