

Subchapter 2. Manufactured Homes, Mobilehomes, Multifamily Manufactured Homes, Commercial Modulares, And Special Purpose Commercial Modulares

Article 1.1 Issuance of Insignia for Manufactured Homes, Mobilehomes, Commercial Coaches and Recreational Vehicles Not Previously Issued Insignia of Approval

§ 4049.1. Application and Scope.

The provisions of this article relating to construction, energy conservation, fire safety, electrical, mechanical, heating and plumbing equipment and installations and occupancy requirements are applicable to all manufactured homes, mobilehomes and commercial coaches, that have not been issued department insignia, and which meet the requirements; of reasonable standards of health and safety as set forth in this subchapter.

AUTHORITY:

Note: Authority cited: Section 18015, Health and Safety Code. Reference: Sections 18025, 18028, 18029.5 and 18031.5, Health and Safety Code.

§ 4049.3. Structural, Fire Safety and Energy Requirements.

(a) In lieu of the requirements of Section 4050(b), the structural, fire safety and energy equipment and installations of manufactured homes and mobile homes manufactured on or after September 15, 1971, and before June 15, 1976, shall conform to the following:

(1) Minimum Requirements. The design and construction of a manufactured home or mobile home shall conform with the provisions of this article. Requirements for any size, weight, or quality of material modified by the terms of "minimum," "not less than," "at least," and similar expressions are minimum standards.

(2) Construction. All construction methods shall be in conformance with accepted engineering practice standards to ensure durable, livable, and safe housing. Exposed metal structural members shall be protected to resist corrosion.

(3) Structural Analysis. The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis.

(4) Design Dead Loads. Design dead loads shall be actual dead load supported by the structural assembly under consideration.

(5) Design Live Loads. The design live loads shall be as specified in Sections 4049.3 (a)(6), (7), (8), (10), (13), (16) and (17) and shall be considered to be uniformly distributed. The roof live load shall not be considered as acting simultaneously with the wind load and the roof and floor live loads shall not be considered as resisting the overturning moment due to wind.

(6) Wind Loads. Manufactured homes or mobile homes shall be designed to withstand minimum horizontal and uplift pressures from any direction as follows:

Horizontal—15 lb/ft²

Vertical (Horizontal projection)—9 lb/ft² uplift

Unit stresses may be increased in accordance with the applicable accepted engineering practice standards.

(7) Roof Loads. Flat, curved and pitched roof members shall be designed to sustain all loadings as follows:

(A) All dead loads plus a minimum unit live load of 20 lb/ft²

(B) A vertical uplift load of 9 lb/ft²

(8) Snow Loads. Where it is known that the manufactured home or mobile home will be subjected to snow loads, the manufactured home or mobile home shall be designed for the appropriate loads. Unit stresses may be increased in accordance with applicable accepted engineering practice standards.

(9) Fastening of Structural Systems. Roof framing shall be securely fastened to wall framing, walls to floor structure, and floor structure to chassis to secure and maintain continuity between the floor and chassis, so as to resist wind overturning and sliding as imposed by design loads in Section 4049.3(a)(6).

(10) Walls. The walls shall be of sufficient strength to withstand the load requirements as defined in Section 4049.3(a)(6), (7) and (8) and without exceeding the deflections specified in Section 4049.3(a)(16). The connections between the bearing walls, floor, and roof framework members shall be fabricated in such a manner as to provide support for the material used to enclose the manufactured home or mobile home and to provide for transfer of all lateral and vertical loads to the floor and chassis.

(11) Interior Walls. Interior walls shall be constructed with structural capacity adequate for the intended purpose and shall be capable of resisting a horizontal load of not less than five pounds per square foot.

(12) Firestopping. Firestopping shall be provided in multistory manufactured homes or mobilehomes to cut off all concealed draft openings in all stud walls and partitions, including furred spaces, so placed that the maximum vertical dimension of any concealed space is not over eight feet.

(13) Floors.

(A) Floor assemblies shall be designed in accordance with accepted engineering practice standards to support a minimum uniform live load of 40 lb/ft² plus the dead load of the materials. In addition (but not simultaneously), floors shall be able to support a 200-pound concentrated load on a two inch diameter disc at the most critical location with a maximum deflection not to exceed one-eighth inch relative to floor framing. Perimeter joists of more than six inches depth shall be stabilized against overturning from superimposed loads as follows: at ends by solid blocking not less than two inch thickness by full depth of joist, or by connecting to a continuous header not less than two inch thickness and not less than the depth of the joist with connecting

device; at eight feet maximum intermediate spacing by solid blocking or by wood cross-bridging of not less than one inch by three inches, metal cross-bridging of equal strength, or by other approved methods.

(B) Wood floors or subfloors in kitchen, bathrooms (including toilet compartments), laundry rooms, water heater compartments, and any other areas subject to excessive moisture shall be moisture resistant or shall be made moisture resistant by sealing or by an overlay of nonabsorbent material applied with water-resistant adhesive.

(14) Carpet. Carpet and/or carpet pads shall not be installed in concealed spaces subject to excessive moisture such as under plumbing fixtures. Carpet and/or pads shall not be installed beneath the bottom plate of shear and bearing walls.

(15) Underfloor Closure Material. Underfloor closure material and method of construction shall be such as to resist damage which would permit penetration of the underside of the manufactured home or mobilehome by water, rodents or insects.

(16) Deflections. Deflection of structural assemblies shall not exceed the following:

Floor--L/240

Roof and Ceiling Members--L/180

Sidewalls--L/180

Where L = the clear span between supports or two times the length of a cantilever.

(17) Roof Members. Roof members shall be capable of withstanding the loads and meet the deflection requirements of Sections 4049.3(a) (6), (7), (8), and (16).

(18) Roof Coverings.

(A) General. Roof coverings shall be securely fastened in an approved manner to the supporting roof construction and shall provide weather protection for the manufactured home or mobilehome and the occupants. All roof decks shall be designed with sufficient slope or camber to assure adequate drainage, or shall be designed to support maximum loads including possible ponding of water due to deflection. Roof covering shall be installed pursuant to the manufacturer's instructions and as approved by the department.

(B) Construction. All roofs shall be so framed and tied into the framework and supporting walls as to form an integral part of the manufactured home or mobilehome. All trusses shall be laterally braced.

(19) Weather Resistance. Exterior covering shall be of moisture and weather resistive materials attached with corrosion resistant fasteners to resist wind and rain. Metal coverings shall be of corrosion resistant materials.

(20) Rodent Resistance. Exterior surfaces shall be sealed to resist the entrance of rodents.

(21) Heat Loss. The total calculated heat loss of the living unit at the outdoor design temperature shall not exceed 40 Btu/hr/ft² of the total floor area or 275 Btu/hr lineal ft. of the perimeter of the space to be heated to 70 degrees F, whichever is greater. The minimum total resistance value (R), excluding framing, of the wall (less windows and doors), ceiling, and floor shall not be less than:

Wall--8.0

Ceiling--16.0

Floor--10.0

(22) "R" values and "U" factors shall be calculated in accord with the provisions of Chapter 20 of the 1972 ASHRAE Handbook of Fundamentals (American Society of Heating, Refrigerating, and Air Conditioning Engineers, 345 East 74th Street, New York, New York 10017).

(23) Framing Heat Loss. In the absence of specific data, for the purpose of heat loss calculations, the following framing areas shall be assumed:

Wall--20% of net wall area (less windows)

Ceiling--5% of total ceiling area

Floor--10% of net floor area (less duct area)

(24) Infiltration Heat Loss. The following shall be used to estimate infiltration heat loss, or infiltration heat loss may be calculated using the method in Chapter 19 of the 1972 ASHRAE Handbook of Fundamentals (American Society of Heating, Refrigerating, and Air Conditioning Engineers, 345 East 74th Street, New York, New York 10017).

Outside Design Temperature Degrees	F Infiltration Allowance BTU/Hr
40.....	3,330
30.....	4,440
20.....	5,550
10.....	6,660
0.....	7,770
Minus 10.....	8,880
Minus 20.....	9,990
Minus 30.....	11,100
Minus 40.....	12,210

(25) Light and Ventilation. Adequate provisions shall be made for light and ventilation in accordance with the following:

(A) Habitable Rooms. Habitable rooms shall be provided with exterior windows or doors having a total glazed area of not less than 10 percent of the gross floor area. An area equivalent to not less than 5 percent of the gross floor area shall be available for

unobstructed ventilation. Glazed areas need not be openable where a mechanical ventilation system is provided and is capable of producing a change of air in the room(s) every thirty minutes with not less than one-fifth of the air supply taken from outside the manufactured home or mobilehome. However, kitchens may be provided with artificial light and mechanical ventilation capable of producing a change of air in the room every 30 minutes. Windows and doors used for light or ventilation shall open directly to the outside of the manufactured home or mobilehome.

(B) Bathroom. Each bathroom shall be provided with artificial light and, in addition, be provided with external windows or doors having not less than 1-1/2 square feet of fully openable glazed area, except where a mechanical ventilation system is provided capable of producing a change of air every 12 minutes. Any mechanical ventilation system shall exhaust directly to the outside of the manufactured home or mobilehome.

(26) Ceiling Height. Every habitable room shall have a minimum ceiling height of not less than seven feet in at least 50 percent of its required area with no portion of the required area less than five feet in height. Hallways shall have a minimum ceiling height of six feet, six inches.

(27) Exit Facilities.

(A) Manufactured homes or mobilehomes shall have a minimum of two exterior doors located remote from each other and so arranged as to provide a means of unobstructed travel to the outside of the manufactured home or mobilehome.

(B) Exterior doors shall be constructed for exterior use and in no case provide less than a 28-inch-wide clear opening. Each exterior door shall have a key-operated lock. The locking mechanism of the lock shall be engaged or disengaged by the use of a lever, knob, button, handle, or other device from the inside. Locks shall not require the use of a key for operation from the inside.

(C) Every room designed expressly for sleeping purposes, unless it has an exit door (see Section 4049.3(a)(27)(B)), shall have at least one outside window which can be opened from the inside without the use of tools to provide a clear opening of not less than 22 inches in least dimension and five square feet in area with the bottom of the opening not more than four feet above the floor. Where a screen or storm window must be removed from this window to permit emergency egress, it shall be readily removable without requiring the use of tools.

(28) Interior Passage. Interior doors having passage hardware without a privacy lock, or with a privacy lock not engaged, shall open from either side by a single movement of the hardware mechanism in any direction.

(29) Every manufactured home or mobilehome shall have at least one habitable room with not less than 150 square feet of gross floor area. Rooms designed for sleeping purposes shall have a minimum gross square foot floor area as follows:

One person--50

Two persons--70

Each person in excess of two--50

(30) No habitable room, except a kitchen, shall be less than five feet in any clear horizontal dimension.

(31) Hallways shall have a minimum horizontal dimension of 28 inches.

(32) Glazing in hazardous locations shall comply with Table MH-1.

Table MH-1

Glazing in the Following Specific Hazardous Locations Shall Meet the Following Requirements

Specific Hazardous Locations	Size of Individual Glazed Area	Requirements ²
Glazing in exit and entrance doors	Over 6 sq. ft.	Each glazed area shall pass the requirements of ANSI Standard Z97.1 ³ if not protected by a protective grille ¹ firmly attached to stiles on each exposed side.
Glazing in storm doors	Over 2 sq. ft.	Each glazed area shall pass the requirements of ANSI Standard Z97.1 ³ if not protected by a protective grille ¹ firmly attached to stiles on each exposed side.
Glazing in sliding exterior doors	All Sizes	Each glazed area shall pass the requirements of ANSI Standard Z97.1 ³
Glazing in all unframed doors (swinging)	All Sizes	Each glazed area shall be fully tempered glass and pass the requirements of ANSI Standard Z97.1. ³
Glazing in shower doors and tub enclosures	All Sizes	Each glazed area shall pass the test requirements of ANSI Standard Z97.1. ³
Other fixed glazed panels located within 12 inches on either side of exit and entrance doors	All Sizes	Each glazed area within 18 inches of the floor shall pass the requirements of ANSI Standard Z97.1 ³ unless the glazed area is protected by a barrier within 12 inches immediately in front of the glazing.

¹ Shall be constructed and attached in such a manner so as to prevent human impact from being delivered to glass surface

² Annealed glass less than single strength (SS) in thickness shall not be used. If short dimension is larger than 24 inches, annealed glass must be double strength (DS) or thicker.

³ American National Standard Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings, as approved January 20, 1972, American National Standards Institute, 1430 Broadway, New York, New York 10018.

(33) Fire Warning Equipment. At least one listed smoke detector (which may be a single station alarm device) shall be installed in each manufactured home or mobilehome.

For the purpose of this article, a "smoke detector" is a device which detects visible or invisible particles of combustion. A "single station alarm device" is an assembly incorporating a detector and an alarm sounding device in one unit, operated from a power supply either in the unit or obtained at the point of installation. Detectors shall operate from an AC, monitored battery, or combination AC/battery power source.

(34) Smoke Detector Location. Smoke detector(s) shall be located outside of bedrooms or in a hallway or space communicating thereto, on or near the ceiling, and shall be installed in accordance with the manufacturer's instructions. Manufactured homes or mobilehomes having bedrooms separated by any one or a combination of common use areas, such as a kitchen, dining room, living room, or family room (but not a bathroom or utility room), shall have at least two detectors.

(35) Alarm Sounding Device. Every smoke-detector shall have an operable alarm signaling device or devices which is clearly audible in all bedrooms with all intervening doors closed and is rated not less than 85 decibels at 10 feet.

(36) Detector Trouble Signals. Detectors requiring a light source for operation shall have an audible trouble signal on failure of the light source, but such failure shall not cause an alarm. Detectors not requiring a light source for operation shall have either a visible light to indicate operability or an audible trouble signal. Audible trouble signals shall be designed to operate at least every minute for seven consecutive days.

(b) The structural, fire safety and energy equipment and installation of commercial coaches shall comply with the applicable provisions of this subchapter.

AUTHORITY:

Note: Authority cited: Section 18015, Health and Safety Code. Reference: Sections 18025, 18028, 18029.5 and 18031.5 Health and Safety Code.

§ 4049.5. Plumbing Requirements.

(a) The plumbing equipment and installations for manufactured homes, mobilehomes and commercial coaches shall conform to the applicable provisions of this subchapter.

AUTHORITY:

Note: Authority cited: Section 18015, Health and Safety Code. Reference: Section 18025, Health and Safety Code.

§ 4049.7. Mechanical Requirements.

(a) The heating, cooling, fuel-burning equipment and installations of manufactured homes or mobilehomes manufactured after September 1, 1958 and prior to June 15, 1976, shall conform to the applicable provisions of this subchapter with the following exceptions:

(1) Gas ranges installed in manufactured homes and mobilehomes manufactured prior to May 1, 1962, are required to be listed by an approved testing agency, and installed in accordance with the terms of their listing.

(2) Gas fired refrigerators and clothes dryers installed in manufactured homes and mobilehomes manufactured prior to August 15, 1963, are required to be listed by an approved testing agency, and installed in accordance with the terms of their listing.

(3) Gas fired furnaces and water heaters installed in manufactured homes and mobilehomes manufactured prior to January 1, 1965, are permitted to be installed in a separate enclosed space completely isolated from the living spaces; any access to the enclosed space from the living space, must have a tight fitting door, with a tag stating "This door must be closed when heater is in operation." Heating appliances must be listed by an approved testing agency and installed in accordance with the manufacturer's installation instructions. No furnace or water heater shall be installed in a bedroom, bathroom or clothes closet.

(4) Manufactured homes and mobilehomes manufactured prior to September 1, 1967, are not required to have a gas shut-off valve ahead of each appliance in the gas piping system.

(5) Gas ranges installed in manufactured homes and mobilehomes manufactured prior to September 1, 1964, are required to have vertical clearances above the cooking top to combustible materials, in accordance with terms of their listing.

(b) The heating, cooling, fuel-burning equipment and installation thereof for commercial coaches shall comply with applicable provisions of this subchapter.

AUTHORITY:

Note: Authority cited: Section 18015, Health and Safety Code. Reference: Section 18025, Health and Safety Code.

§ 4049.9. Electrical Requirements.

(a) The electrical equipment and installation of manufactured homes or mobile homes manufactured after September 1, 1958 and prior to June 15, 1976, shall conform to the applicable provisions of this subchapter with the following exceptions:

(1) Manufactured homes and mobilehomes manufactured prior to September 1, 1964, require only one (1) 20 ampere appliance circuit in the kitchen and one (1) 15 ampere general purpose lighting circuit. Units with not more than a total of six (6) lighting outlets

and general appliance and convenience outlets combined, shall have not less than one (1) 20 ampere no. 12 gauge copper wire circuit to supply these outlets and the total rating of fixed appliances connected to this circuit shall not exceed nine (9) amperes or one thousand (1,000) watts.

(2) Manufactured homes and mobilehomes manufactured prior to September 1, 1964, require receptacle outlets installed every twenty (20) linear feet or major fraction thereof for the total (gross) distance around the room as measured horizontally along the wall at the floor line.

(3) Manufactured homes and mobilehomes manufactured prior to September 1, 1964, shall have grounding type receptacles for laundry appliances and exterior locations or shall have the circuits or receptacles protected by a ground-fault interrupter.

(4) Manufactured homes and mobilehomes manufactured prior to September 1, 1975, are not required to have electrical ground-fault circuit protection, except as permitted by Section 4049.9(a)(3).

(5) Manufactured homes and mobilehomes with aluminum 15 and 20 ampere branch circuit wiring shall have listed CO/ALR receptacles and switches or the circuits connected to the receptacles and switches by copper conductors in the outlet box with listed wire nuts or wire connectors (pigtailed).

(6) Manufactured homes and mobilehomes manufactured prior to June 15, 1976, are not required to have an exterior receptacle at the water connection to energize a heat tape.

(b) The electrical equipment and installation thereof for commercial coaches shall comply with the applicable provisions of this subchapter.

AUTHORITY:

Note: Authority cited: Section 18015, Health and Safety Code. Reference: Section 18025, Health and Safety Code.