

Subpart C—Fire Safety

SOURCE: 49 FR 32008, Aug. 9, 1984, unless otherwise noted.

§ 3280.201 Scope.

The purpose of this subpart is to set forth requirements that will assure reasonable fire safety to the occupants by reducing fire hazards and by providing measures for early detection.

§ 3280.202 Definitions.

The following definitions are applicable to subparts C, H, and I of the Standards:

Combustible material: Any material not meeting the definition of limited-combustible or non-combustible material.

Flame-spread rating: The measurement of the propagation of flame on the surface of materials or their assemblies as determined by recognized standard tests conducted as required by this subpart.

Interior finish: The surface material of walls, fixed or movable partitions, ceilings, columns, and other exposed interior surfaces affixed to the home's structure including any materials such as paint or wallpaper and the substrate to which they are applied. Interior finish does not include:

- (1) Trim and sealant 2 inches or less in width adjacent to the cooking range and in furnace and water heater spaces provided it is installed in accordance with the requirements of § 3280.203(b)(3) or (4), and trim 6 inches or less in width in all other areas;
- (2) Windows and frames;
- (3) Single doors and frames and a series of doors and frames not exceeding 5 feet in width;
- (4) Skylights and frames;
- (5) Casings around doors, windows, and skylights not exceeding 4 inches in width;
- (6) Furnishings which are not permanently affixed to the home's structure;
- (7) Baseboards not exceeding 6 inches in height;
- (8) Light fixtures, cover plates of electrical receptacle outlets, switches, and other devices;
- (9) Decorative items attached to walls and partitions (i.e., pictures, decorative objects, etc.) constituting no

more than 10% of the aggregate wall surface area in any room or space not more than 32 square feet in surface area, whichever is less;

(10) Plastic light diffusers when suspended from a material which meets the interior finish provisions of § 3280.203(b);

(11) Coverings and surfaces of exposed wood beams; and

(12) Decorative items including the following:

(i) Non-structural beams not exceeding 6 inches in depth and 6 inches in width and spaced not closer than 4 feet on center;

(ii) Non-structural lattice work;

(iii) Mating and closure molding; and

(iv) Other items not affixed to the home's structure.

Limited combustible: A material meeting:

(1) The definition of Article 2-3 or NFPA 220-1992; or

(2) $\frac{5}{16}$ -inch or thicker gypsum board.

Noncombustible material: A material meeting the definition of contained in NFPA 220-1992.

Single-station alarm device: An assembly incorporating the smoke detector sensor, the electrical control equipment, and the alarm-sounding device in one unit.

Smoke detector: A wall-mounted detector of the ionization chamber or photoelectric type which detects visible or invisible particles of combustion and operates from a 120V AC source of current.

[58 FR 55004, Oct. 25, 1993]

§ 3280.203 Flame spread limitations and fire protection requirements.

(a) *Establishment of flame spread rating.* The surface flame spread rating of interior-finish material shall not exceed the value shown in § 3280.203(b) when tested by "Standard Test Method for Surface Burning Characteristics of Building Materials, ASTM E 84-91a" except that the surface flame spread rating of interior-finish materials required by § 3280.203(b)(5) and (6) may be determined by using the "Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source, ASTM E 162-90". However, the following materials need not be tested to establish their flame spread

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rating unless a lower rating is required by these standards.

- (1) Flame-spread rating—76 to 200.
 - (i) .035-inch or thicker high pressure laminated plastic panel countertop;
 - (ii) ¼-inch or thicker unfinished plywood with phenolic or urea glue;
 - (iii) Unfinished dimension lumber (1-inch or thicker nominal boards);
 - (iv) ¾-inch or thicker unfinished particleboard with phenolic or urea binder;
 - (v) Natural gum-varnished or latex- or alkyd-painted:
 - (A) ¼-inch or thicker plywood, or
 - (B) ¾-inch or thicker particleboard, or
 - (C) 1-inch or thicker nominal board;
 - (vi) ⅝-inch gypsum board with decorative wallpaper; and
 - (vii) ¼-inch or thicker unfinished hardboard,
- (2) Flame-spread rating—25 to 200,
 - (i) Painted metal;
 - (ii) Mineral-base acoustic tile;
 - (iii) ⅝-inch or thicker unfinished gypsum wallboard (both latex- or alkyd-painted); and
 - (iv) Ceramic tile.

(The above-listed material applications do not waive the requirements of §3280.203(c) or §3280.204 of this subpart.)

(b) Flame-spread rating requirements.

- (1) The interior finish of all walls, columns, and partitions shall not have a flame spread rating exceeding 200 except as otherwise specified herein.
- (2) Ceiling interior finish shall not have a flame spread rating exceeding 75.
- (3) Walls adjacent to or enclosing a furnace or water heater and ceilings above them shall have an interior finish with a flame spread rating not exceeding 25. Sealants and other trim materials 2 inches or less in width used to finish adjacent surfaces within these spaces are exempt from this provision provided that all joints are completely supported by framing members or by materials having a flame spread rating not exceeding 25.
- (4) Exposed interior finishes adjacent to the cooking range shall have a flame spread rating not exceeding 50, except that backsplashes not exceeding 6 inches in height are exempted. Adjacent surfaces are the exposed vertical

surfaces between the range top height and the overhead cabinets and/or ceiling and within 6 horizontal inches of the cooking range. (Refer also to §3280.204(a), Kitchen Cabinet Protection.) Sealants and other trim materials 2 inches or less in width used to finish adjacent surfaces are exempt from this provision provided that all joints are completely supported by a framing member.

(5) Kitchen cabinet doors, countertops, backsplashes, exposed bottoms, and end panels shall have a flame spread rating not to exceed 200. Cabinet rails, stiles, mullions, and top strips are exempted.

(6) Finish surfaces of plastic bathtubs, shower units, and tub or shower doors shall not exceed a flame spread rating of 200.

(c) Fire protective requirements.

(1) Materials used to surface the following areas shall be of limited combustible material (e.g., ⅝-inch gypsum board, etc.):

- (i) The exposed wall adjacent to the cooking range (see §3280.203(b)(4));
- (ii) Exposed bottoms and sides of kitchen cabinets as required by §3280.204;
- (iii) Interior walls and ceilings enclosing furnace and/or water heater spaces; and
- (iv) Combustible doors which provide interior or exterior access to furnace and/or water heater spaces. The surface may be interrupted for louvers ventilating the enclosure. However, the louvers shall not be constructed of a material of greater combustibility than the door itself (e.g., plastic louvers on a wooden door).

(2) No burner of a surface cooking unit shall be closer than 12 horizontal inches to a window or an exterior door with glazing.

[49 FR 32008, Aug. 9, 1984, as amended at 58 FR 55005, Oct. 25, 1993]

§ 3280.204 Kitchen cabinet protection.

(a) The bottom and sides of combustible kitchen cabinets over cooking ranges to a horizontal distance of 6 inches from the outside edge of the cooking range shall be protected with at least ⅝-inch thick gypsum board or

equivalent limited combustible material. One-inch nominal framing members and trim are exempted from this requirement. The cabinet area over the cooking range or cooktops shall be protected by a metal hood (26-gauge sheet metal, or .017 stainless steel, or .024 aluminum, or .020 copper) with not less than a 3-inch eyebrow projecting horizontally from the front cabinet face. The $\frac{5}{16}$ -inch thick gypsum board or equivalent material which is above the top of the hood may be supported by the hood. A $\frac{3}{8}$ -inch enclosed air space shall be provided between the bottom surface of the cabinet and the gypsum board or equivalent material. The hood shall be at least as wide as the cooking range.

(b) The 3-inch metal eyebrow required by paragraph (a) of this section will project from the front and rear cabinet faces when there is no adjacent surface behind the range, or the $\frac{5}{16}$ -inch thick gypsum board or equivalent material shall be extended to cover all exposed rear surfaces of the cabinet.

(c) The metal hood required by paragraphs (a) and (b) of this section can be omitted when an oven of equivalent metal protection is installed between the cabinet and the range and all exposed cabinet surfaces are protected as described in paragraph (a) of this section.

(d) When a manufactured home is designed for the future installation of a cooking range, the metal hood and cabinet protection required by paragraph (a) of this section and the wall-surfacing protection behind the range required by § 3280.203 shall be installed in the factory.

(e) Vertical clearance above cooking top. Ranges shall have a vertical clearance above the cooking top of not less than 24 inches to the bottom of combustible cabinets.

§ 3280.205 Carpeting.

Carpeting shall not be used in a space or compartment designed to contain only a furnace and/or water heater. Carpeting may be used in other areas where a furnace or water heater is installed, provided that it is not located under the furnace or water heater.

§ 3280.206 Firestopping.

(a) Firestopping of at least 1-inch nominal lumber, $\frac{5}{16}$ -inch thick gypsum board, or the equivalent, shall be provided to cut off concealed draft openings between walls and partitions, including furred spaces, and the roof or floors, so as to retard vertical movement of fire. In particular, such concealed spaces must be constructed so that floor-to-ceiling concealed spaces on one floor do not communicate with any concealed space on another floor, any concealed spaces in the floor, or any concealed space in the roof cavity. A barrier must be installed to prevent communication between adjacent concealed spaces.

(1) Where the barrier is vertical, it must be made of exterior or interior covering(s) equivalent to that used on the nearest exposed wall surface; and

(2) In all other cases, the barrier must be made of 1-inch nominal lumber, $\frac{5}{16}$ -inch thick gypsum board, or the equivalent.

(b) A space does not lose its character as a concealed draft opening if it is filled with insulation or other material or if it is blocked by a barrier other than as required by paragraph (a) of this section.

(c) All openings for pipes and vents and other penetrations in walls, floors, and ceilings of furnace and water heater spaces shall be tight-fitted or firestopped. Pipes, vents, and other penetrations are tight-fitted when they cannot be moved freely in the opening.

§ 3280.207 Requirements for foam plastic thermal insulating materials.

(a) *General.* Foam plastic thermal insulating materials shall not be used within the cavity of walls (not including doors) or ceilings or be exposed to the interior of the home unless:

(1) The foam plastic insulating material is protected by an interior finish of $\frac{5}{16}$ -inch thick gypsum board or equivalent material for all cavities where the material is to be installed; or

(2) The foam plastic is used as a sheathing or siding backerboard, and it:

(i) Has a flame spread rating of 75 or less and a smoke-developed rating of 450 or less (not including outer covering of sheathing);

(ii) Does not exceed 3/8-inch in thickness; and

(iii) Is separated from the interior of the manufactured home by a minimum of 2 inches of mineral fiber insulation or an equivalent thermal barrier; or

(3) The foam plastic insulating material has been previously accepted by the Department for use in wall and/or ceiling cavities of manufactured homes, and it is installed in accordance with any restrictions imposed at the time of that acceptance; or

(4) The foam plastic insulating material has been tested as required for its location in wall and/or ceiling cavities in accordance with testing procedures described in the Illinois Institute of Technology Research Institute (IITRI) Report, "Development of Mobile Home Fire Test Methods to Judge the Fire Safe Performance of Foam Plastic, J-6461," or other full-scale fire tests accepted by the Department, and it is installed in a manner consistent with the way the material was installed in the foam plastic test module. The materials shall be capable of meeting the following acceptance criteria required for their location.

(i) *Wall assemblies.* The foam plastic system shall demonstrate equivalent or superior performance to the control module as determined by:

(A) Time to reach flashover (600°C in the upper part of the room);

(B) Time to reach an oxygen (O₂) level of 14% (rate of O₂ depletion), a carbon monoxide (CO) level of 1%, a carbon dioxide (CO₂) level of 6%, and a smoke level of 0.26 optical density/meter measured at 5 feet high in the doorway; and

(C) Rate of change concentration for O₂, CO, CO₂ and smoke measured 3 inches below the top of the doorway.

(ii) *Ceiling assemblies.* A minimum of three valid tests of the foam plastic system and one valid test of the control module shall be evaluated to determine if the foam plastic system demonstrates equivalent or superior performance to the control module. Individual factors to be evaluated include intensity of cavity fire (temperature-time) and post-test damage.

(iii) *Post-test damage assessment for wall and ceiling assemblies.* The overall performance of each total system shall

also be evaluated in determining the acceptability of a particular foam plastic insulating material.

(b) All foam plastic thermal insulating materials used in manufactured housing shall have a flame spread rating of 75 or less (not including outer covering or sheathing) and a maximum smoke-developed rating of 450.

§ 3280.208 Fire detection equipment.

(a) *General.* At least one smoke detector (which may be a single station alarm device) shall be installed in the home in the location(s) specified in paragraph (b) of this section.

(b) *Smoke detector locations.* (1) A smoke detector shall be installed on any wall in the hallway or space communicating with each bedroom area between the living area and the first bedroom door unless a door(s) separates the living area from that bedroom area, in which case the detector(s) shall be installed on the living area side as close to the door(s) as practicable. Homes having bedroom areas separated by any one or combination of common-use areas such as kitchen, dining room, living room, or family room (but not a bathroom or utility room), shall have at least one detector protecting each bedroom area.

(2) When located in hallways, the detector shall be between the return air intake and the living area.

(3) When a home is equipped or designed for future installation of a roof-mounted evaporative cooler or other equipment discharging conditioned air through a ceiling grille into the living space environment, the detector closest to the air discharge shall be located no closer than three horizontal feet from any discharge grille.

(4) A smoke detector shall not be placed in a location which impairs its effectiveness.

(c) *Labeling.* Smoke detectors shall be labeled as conforming with the requirements of Underwriters' Laboratories Standard No. 217—Fourth Edition 1993 for Single and Multiple Station Smoke Detectors.

(d) *Installation.* Each smoke detector shall be installed in accordance with its listing. The top of the detector shall be located on a wall 4 inches to 12 inches, or at a distance permitted by

the listing, below the ceiling. However, when a detector is mounted on an interior wall below a sloping ceiling, it shall be located 4 inches to 12 inches below the intersection of the connecting exterior wall and the sloping ceiling (cathedral ceiling). The required detector(s) shall be attached to an electrical outlet box and the detector connected by a permanent wiring method into a general electrical circuit. There shall be no switches in the circuit to the detector between the over-current protection device protecting the branch circuit and the detector. Smoke detector(s) shall not be placed on the same branch circuit or any circuit protected by a ground fault circuit interrupter.

[49 FR 32008, Aug. 9, 1984, as amended at 58 FR 55005, Oct. 25, 1993]

§ 3280.209 Fire testing.

All fire testing conducted in accordance with this subpart shall be performed by nationally recognized testing laboratories which have expertise in fire technology. In case of dispute, the Secretary shall determine if a particular agency is qualified to perform such fire tests.

[49 FR 32011, Aug. 9, 1984]

Subpart D—Body and Frame Construction Requirements

§ 3280.301 Scope.

This subpart covers the minimum requirements for materials, products, equipment and workmanship needed to assure that the manufactured home will provide:

- (a) Structural strength and rigidity,
- (b) Protection against corrosion, decay, insects and other similar destructive forces,
- (c) Protection against hazards of windstorm, (d) resistance to the elements, and
- (e) Durability and economy of maintenance.

§ 3280.302 Definitions.

The following definitions are applicable to subpart D only:

Anchoring equipment: means straps, cables, turnbuckles, and chains, including tensioning devices, which are used

with ties to secure a manufactured home to ground anchors.

Anchoring system: means a combination of ties, anchoring equipment, and ground anchors that will, when properly designed and installed, resist overturning and lateral movement of the manufactured home from wind forces.

Diagonal tie: means a tie intended to primarily resist horizontal forces, but which may also be used to resist vertical forces.

Footing: means that portion of the support system that transmits loads directly to the soil.

Ground anchor: means any device at the manufactured home stand designed to transfer manufactured home anchoring loads to the ground.

Loads: (1) *Dead load:* means the weight of all permanent construction including walls, floors, roof, partition, and fixed service equipment.

(2) *Live load:* means the weight superimposed by the use and occupancy of the manufactured home, including wind load and snow load, but not including dead load.

(3) *Wind load:* means the lateral or vertical pressure or uplift on the manufactured home due to wind blowing in any direction.

Main frame: means the structural component on which is mounted the body of the manufactured home.

Pier: means that portion of the support system between the footing and manufactured home exclusive of caps and shims.

Sheathing: means material which is applied on the exterior side of a building frame under the exterior weather resistant covering.

Stabilizing devices: means all components of the anchoring and support system such as piers, footings, ties, anchoring equipment, ground anchors, and any other equipment which supports the manufactured home and secures it to the ground.

Support system: means a combination of footings, piers, caps, and shims that will, when properly installed, support the manufactured home.

Tie: means straps, cable, or securing devices used to connect the manufactured home to ground anchors.