

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.

EFFECTIVE DATE NOTE: At 70 FR 72043, Nov. 30, 2005, §3280.207 was amended by revising paragraph (a)(4) introductory text, effective May 30, 2006. For the convenience of the user, the revised text follows:

§ 3280.207 Requirements for foam plastic thermal insulating materials.

(a) * * *

(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 (IIT) Report, "Development of Mobile Home Fire Test Methods to Judge the Fire-Safe Performance of Foam Plastic Sheathing and Cavity Insulation, IITRI Fire and Safety Research Project J-6461, 1979" or other full-scale fire tests accepted by HUD, and it is installed in a manner consistent with the way the material was installed in the foam plastic test module. The materials must be capable of meeting the following acceptance criteria required for their location:

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§ 3280.208 Smoke alarm requirements.

(a) *Labeling.* Each smoke alarm required under paragraph (b) of this section must conform with the requirements of UL 217, Single and Multiple Station Smoke Alarms, dated January 4, 1999 (incorporated by reference, see §3280.4), or UL 268, Smoke Detectors for Fire Protective Signaling Systems, dated January 4, 1999 (incorporated by reference, see §3280.4), and must bear a label to evidence conformance.

(b) *Required smoke alarm locations.* (1) At least one smoke alarm must be installed in each of the following locations:

(i) To protect both the living area and kitchen space. Manufacturers are encouraged to locate the alarm in the living area remote from the kitchen and cooking appliances. A smoke alarm located within 20 feet horizontally of a cooking appliance must incorporate a temporary silencing feature or be of a photoelectric type.

(ii) In each room designed for sleeping.

(iii) On the ceiling of the upper level near the top or above each stairway, other than a basement stairway, in any multistory home completed in accordance with this part or part 3282 of this chapter. The alarm must be located so that smoke rising in the stairway cannot be prevented from reaching the alarm by an intervening door or obstruction.

(2) For each home designed to be placed over a basement, the manufacturer must provide a smoke alarm for the basement and must install at the factory an electrical junction box for the installation of this smoke alarm and for its interconnection to other smoke alarms required by this section. The instructions for installers and information for homeowners required in paragraph (f) of this section must clearly indicate that a smoke alarm should be installed and is to be located on the basement ceiling near the stairway.

(3) A smoke alarm required under this section must not be placed in a location that impairs its effectiveness or in any of the following locations:

(i) Within 3 feet horizontally from any discharge grille 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; and

(ii) In any location or environment that is prohibited by the terms of its listing, except as permitted by this section.

(c) *Mounting requirements.* (1) Except in rooms with peaked sloping or shed sloping ceilings with a slope of more than 1.5/12 or as permitted pursuant to paragraph (e) of this section, smoke alarms must be mounted either:

(i) On the ceiling at least 4 inches from each wall; or

(ii) On a wall with the top of the alarm not less than 4 inches below the ceiling, and not farther from the ceiling than 12 inches or the distance from the ceiling specified in the smoke alarm manufacturer's listing and instructions, whichever is less.

(2) Except as permitted pursuant to paragraph (e) of this section, in rooms with peaked sloping ceilings with a slope of more than 1.5/12, smoke alarms must be mounted on the ceiling within 3 feet, measured horizontally, from the peak of the ceiling; at least 4 inches, measured vertically, below the peak of the ceiling; and at least 4 inches from any projecting structural element.

(3) Except as permitted pursuant to paragraph (e) of this section, in rooms with shed sloping ceilings with a slope of more than 1.5/12, smoke alarms must be mounted on the ceiling within 3 feet, measured horizontally, of the high side of the ceiling, and not closer than 4 inches from any adjoining wall surface and from any projecting structural element.

(d) *Connection to power source.* (1) Each smoke alarm must be powered from:

(i) The electrical system of the home as the primary power source and a battery as a secondary power source; or

(ii) A battery rated for a 10-year life, provided the smoke alarm is listed for use with a 10-year battery.

(2) Each smoke alarm whose primary power source is the home electrical system must be mounted on an electrical outlet box and connected by a permanent wiring method to a general electrical circuit. More than one smoke alarm is permitted to be placed on the same electrical circuit. The wiring circuit for the alarm must not include any switches between the over-current protective device and the alarm, and must not be protected by a ground fault circuit interrupter.

(3) Smoke alarms required under this section must be interconnected such that the activation of any one smoke alarm causes the alarm to be triggered in all required smoke alarms in the home.

(e) *Visible and tactile notification appliances.* (1) In addition to the smoke alarms required pursuant to this section, the manufacturer must provide

visible and listed tactile notification appliances if these appliances are ordered by the purchaser or retailer before the home enters the first stage of production. These appliances are required to operate from the primary power source, but are not required to operate from a secondary power source.

(2) A visible notification appliance in a room designed for sleeping must have a minimum rating of 177 candela, except that when the visible notification appliance is wall-mounted or suspended more than 24 inches below the ceiling, a minimum rating of 110 candela is permitted.

(3) A visible notification appliance in an area other than a room designed for sleeping must have a minimum rating of 15 candela.

(f) *Testing and maintenance.* (1) Each required smoke alarm installed at the factory must be operationally tested, after conducting the dielectric test specified in §3280.810(a), in accordance with the alarm manufacturer's instructions. A smoke alarm that does not function as designed during the test and is not fixed so that it functions properly in the next retest must be replaced. Any replacement smoke alarm must be successfully tested in accordance with this paragraph.

(2) Home manufacturers must provide specific written instructions for installers on how to inspect and test the operation of smoke alarms during installation of the home. These instructions must indicate that any smoke alarm that does not meet the inspection or testing requirements needs to be replaced and retested.

(3) Home manufacturers must provide the homeowner with the alarm manufacturer's information describing the operation, method and frequency of testing, and proper maintenance of the smoke alarm. This information must be provided in same manner and location as the consumer manual required by §3282.207 of this chapter, but does not have to be incorporated into the consumer manual. No dealer, distributor, construction contractor, or other person shall interfere with the distribution of this information

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