

(d) *Operating instructions.* Operating instructions shall be affixed to each egress window and device and carry the legend “Do Not Remove.”

(e) *Certification of egress windows and devices.* Egress windows and devices shall be listed in accordance with the procedures and requirements of AAMA Standard 1704–1985. As of January 17, 1995, this certification must be based on tests conducted at the design wind loads specified in § 3280.305(c)(1).

(f) *Protection of egress window openings in high wind areas.* For homes designed to be located in Wind Zones II and III, manufacturers shall design exterior walls surrounding the egress window openings to allow for the installation of shutters or other protective covers, such as plywood, to cover these openings. Although not required, the Department encourages manufacturers to provide the shutters or protective covers and to install receiving devices, sleeves, or anchors for fasteners to be used to secure the shutters or protective covers to the exterior walls. If the manufacturer does not provide shutters or other protective covers to cover these openings, the manufacturer must provide to the homeowner instructions for at least one method of protecting egress window openings. This method must be capable of resisting the design wind pressures specified in § 3280.305 without taking the home out of conformance with the standards in this part. These instructions must be included in the printed instructions that accompany each manufactured home. The instructions shall also indicate whether receiving devices, sleeves, or anchors, for fasteners to be used to secure the shutters or protective covers to the exterior walls, have been installed or provided by the manufacturer.

[52 FR 4583, Feb. 12, 1987, as amended at 59 FR 2474, Jan. 14, 1994]

**§ 3280.405 Standard for swinging exterior passage doors for use in manufactured homes.**

(a) *Introduction.* This standard applies to all exterior passage door units, excluding sliding doors and doors used for access to utilities and compartments. This standard applies only to the door

frame consisting of jambs, head and sill and the attached door or doors.

(b) *Performance requirements.* The design and construction of exterior door units shall meet all requirements of AAMA 1702.2–1985, Swinging Exterior Passage Doors Voluntary Standard for Utilization in Manufactured—Housing.

(c) *Materials and methods.* Any material or method of construction shall conform to the performance requirements as outlined in paragraph (b) of this section. Wood materials or wood based materials shall also conform to the following:

(1) *Wood.* Doors shall conform to the type 1 requirements of ANSI/NWWDA I.S.1–87, Wood Flush Doors.

(2) *Plywood.* Plywood shall be exterior type and preservative treated in accordance with NWWDA I.S.4–81, Water Repellent Preservative Non-Pressure Treatment for Millwork.

(d) *Exterior doors.* All swinging exterior doors shall be installed in a manner which allows proper operation and provides protection against the elements (see § 3280.307).

(e) *Certification.* All swinging exterior doors to be installed in manufactured homes shall be certified as complying with AAMA Standard 1702.2–1985.

(1) All such doors shall show evidence of certification by affixing a quality certification label to the product in accordance with ANSI Z34.1–1982, “For Certification-Third-Party Certification Program.”

(2) In determining certifiability of the products, an independent quality assurance agency shall conduct preproduction specimen test in accordance with AAMA 1701.2–1985. Further, such agency shall inspect the product manufacturer’s facility at least twice per year.

(f) *Protection of exterior doors in high wind areas.* For homes designed to be located in Wind Zones II and III, manufacturers shall design exterior walls surrounding the exterior door openings to allow for the installation of shutters or other protective covers, such as plywood, to cover these openings. Although not required, the Department encourages manufacturers to provide the shutters or protective covers and to install receiving devices, sleeves, or

anchors for fasteners to be used to secure the shutters or protective covers to the exterior walls. If the manufacturer does not provide shutters or other protective covers to cover these openings, the manufacturer must provide to the homeowner instructions for at least one method of protecting exterior door openings. This method must be capable of resisting the design wind pressures specified in § 3280.305 without taking the home out of conformance with the standards in this part. These instructions must be included in the printed instructions that accompany each manufactured home. The instructions shall also indicate whether receiving devices, sleeves, or anchors, for fasteners to be used to secure the shutters or protective covers to the exterior walls, have been installed or provided by the manufacturer.

[40 FR 58752, Dec. 18, 1975. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 52 FR 4583, Feb. 12, 1987; 52 FR 35543, Sept. 22, 1987; 58 FR 55009, Oct. 25, 1993; 59 FR 2474, Jan. 14, 1994]

**§ 3280.406 Air chamber test method for certification and qualification of formaldehyde emission levels.**

(a) *Preconditioning.* Preconditioning of plywood or particleboard panels for air chamber tests shall be initiated as soon as practicable but not in excess of 30 days after the plywood or particleboard is produced or surface-finished, whichever is later, using randomly selected panels.

(1) If preconditioning is to be initiated more than two days after the plywood or particleboard is produced or surface-finished, whichever is later, the panels must be dead-stacked or airtight wrapped until preconditioning is initiated.

(2) Panels selected for testing in the air chamber shall not be taken from the top or bottom of the stack.

(b) *Testing.* Testing shall be conducted in accordance with the Standard Test Method for Determining Formaldehyde Levels from Wood Products Under Defined Test Conditions Using a Large Chamber, ASTM E-1333-90, with the following exceptions:

(1) The chamber shall be operated indoors.

(2) Plywood and particleboard panels shall be individually tested in accordance with the following loading ratios:

- (i) Plywood—0.29 Ft<sup>2</sup>/Ft<sup>3</sup>, and
- (ii) Particleboard—0.13 Ft<sup>2</sup>/Ft<sup>3</sup>.

(3) Temperature to be maintained inside the chamber shall be 77° plus or minus 2 °F.

(4) The test concentration (C) shall be standardized to a level (C<sub>0</sub>) at a temperature (t<sub>0</sub>) of 77 °F and 50% relative humidity (H<sub>0</sub>) by the following formula:

$$C = C_0 \times [1 + Ax (H - H_0)] \times e^{-R(t - t_0)}$$

where:

C = Test formaldehyde concentration

C<sub>0</sub> = Standardized formaldehyde concentration

e = Natural log base

R = Coefficient of temperature (9799)

t = Actual test condition temperature (° K)

t<sub>0</sub> = Standardized temperature (° K)

A = Coefficient of humidity (0.0175)

H = Actual relative humidity (%)

H<sub>0</sub> = Standardized relative humidity (%)

The standardized level (C<sub>0</sub>) is the concentration used to determine compliance with § 3280.308(a).

(5) The air chamber shall be inspected and recalibrated at least annually to insure its proper operation under test conditions.

[49 FR 32012, Aug. 9, 1984, as amended at 58 FR 55009, Oct. 25, 1993]

**Subpart F—Thermal Protection**

**§ 3280.501 Scope.**

This subpart sets forth the requirements for condensation control, air infiltration, thermal insulation and certification for heating and comfort cooling.

**§ 3280.502 Definitions.**

(a) The following definitions are applicable to subpart F only:

(1) *Pressure envelope* means that primary air barrier surrounding the living space which serves to limit air leakage. In construction using ventilated cavities, the pressure envelope is the interior skin.

(2) *Thermal envelope area* means the sum of the surface areas of outside walls, ceiling and floor, including all openings. The wall area is measured by