DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

24 CFR Part 3280

[Docket No. FR–4886–F–02]

RIN 2502–AI12

Manufactured Home Construction and Safety Standards

AGENCY: Office of the Assistant Secretary for Housing—Federal Housing Commissioner, HUD.

ACTION: Final rule.

SUMMARY: This rule amends the Federal Manufactured Home Construction and Safety Standards (the Construction and Safety Standards) by adopting certain recommendations made to HUD by the Manufactured Housing Consensus Committee (MHCC). As required by the National Manufactured Housing Construction and Safety Standards Act of 1974 (the Act), HUD published, in the **Federal Register** on December 1, 2004, the first group of recommendations submitted by MHCC to improve various aspects of the Construction and Safety Standards. HUD, in publishing MHCC's recommendations in the proposed rule, indicated its agreement with all but a few of MHCC's proposals, and most of the recommendations are included in the final rule. HUD has also identified in this final rule those MHCC proposals that were not accepted by HUD, returned to MHCC for further consideration, or modified by HUD in light of public comments received.

DATES: *Effective Date:* May 30, 2006. The incorporation by reference of certain publications in this rule is approved by the Director of the Federal Register as of May 30, 2006.

FOR FURTHER INFORMATION CONTACT: William W. Matchneer III, Associate Deputy Assistant Secretary, Office of Regulatory Affairs and Manufactured Housing, Department of Housing and Urban Development, 451 Seventh Street, SW., Room 9162, Washington DC 20410; telephone (202) 708–6401 (this is not a toll-free number). Persons with hearing or speech impairments may access this number via TTY by calling the toll-free Federal Information Relay Service at (800) 877–8389.

SUPPLEMENTARY INFORMATION:

I. Background

On December 1, 2004, at 69 FR 70016, HUD published a proposed rule to amend various sections of the Federal Manufactured Home Construction and Safety Standards (24 CFR part 3280) by adopting a majority of the recommendations made to HUD by MHCC. The National Manufactured Housing Construction and Safety Standards Act of 1974, 42 U.S.C. 5401–5426 (the Act), requires HUD to publish any proposed revised Construction and Safety Standards submitted by MHCC in the **Federal Register**. The proposed rule contained the recommended revisions (including the recommendations made by MHCC that HUD modified, accepted, or did not accept) and provided an opportunity for public comment.

HUD will continue to work with MHCC on its recommendation to remove the current requirement to post a Health Notice on formaldehyde emissions in each manufactured home. In addition, HUD is making the following significant changes to the proposed rule, based on the public comments, in this final rule:

(1) The proposed revisions to improve the truss testing requirements in § 3280.402 have been removed and are being returned to MHCC for further consideration on the recommendation of the commenters and at the request of MHCC.

(2) Limited exceptions to the 5.0 perm requirements for interior wall surfaces of up to 50 square feet are permitted by the final rule for homes designed to be sited in hot-humid climates.

(3) Updates to a number of the standards incorporated by reference that are more current than were suggested in the proposed rule are included in the final rule.

II. Analysis of Public Comments

The Commenters

HUD received 26 public comments on the proposed rule. Comments were received from MHCC; manufactured home builders; a state's Department of Community and Economic Development; an independent inspection agency with experience in manufactured home design; a propane gas trade association; an energy efficiency alliance; a state and a national manufactured housing association; and associations representing particleboard, hardboard, and fiberboard manufacturers.

Summary of Public Comments

The summary of public comments that follows presents the major issues and questions raised by the public commenters on the December 1, 2004, proposed rule. The headings present the issue or question addressed, followed by a brief description of the commenters' reasoning. A response may be applicable to one or more issues or questions. The summary of the public comments is organized as follows:

General comments.
Whole-house ventilation comments.
Fireblocking comments.
Body and frame requirement comments.
Formaldehyde health notice comments.
Roof truss testing requirement comments.
Thermal protection comments.
Plumbing system comments.
Heating, cooling, and fuel burning requirement comments.
Electrical systems comments.
Comments regarding revisions to standards incorporated by reference.
Other public comments.
Comments of the Manufactured Housing Consensus Committee.

General Comments

Several commenters explained that they were encouraged that HUD and MHCC were working together to update the Construction and Safety Standards. Most commenters were very specific in commenting on particular amendments in the proposed rule.

Commenters most often discussed the Department's decision not to delete the requirement for posting of a Health Notice on formaldehyde emissions in each manufactured home, the proposed amendments to the testing requirements for roof trusses, and the provisions for condensation control in hot-humid climates.

Additional comments referred to whole-house ventilation systems, fireblocking requirements, vapor retarder installation requirements, flow faucet and showerhead restrictions, water heater drain pan requirements, revisions to the standards incorporated by reference, and metric equivalent requirements. Commenters also submitted comments on whether the approval of alternative test methods should be solely the responsibility of Design Approval Primary Inspection Agencies (DAPIAs), or whether DAPIAs should provisionally approve alternative test methods subject to HUD's approval.

Whole-House Ventilation Comments

The December 1, 2004, proposed rule would have amended § 3280.103(b) by simplifying the requirements for sizing whole-house ventilation systems of manufactured homes.

Comment: The current requirement for balanced mechanical ventilation systems should not be deleted. Two commenters wrote that permitting any pressure imbalance provides the opportunity for unwanted humid air infiltration and would be detrimental to homes sited in Thermal Zone I.

HUD Response: The final rule does not eliminate the requirement for balanced mechanical systems. Retention of the requirement in the final rule better ensures that unwanted air infiltration is not introduced into the home. A HUD study entitled, ''Alternatives for Minimizing Moisture Problems in Hot, Humid Climates (2003)'' found that the most significant factors contributing to moisture problems were pressure imbalances in a house, including imbalances caused by uneven distribution of conditioned air; duct air leakage; and leakage through building walls.

Comment: There is no requirement for additional fresh air to be introduced into the home for the whole-house ventilation system.

HUD Response: There is sufficient leakage around the envelope of even a ''tight'' home to alleviate any pressure difference between the exterior and the interior of the home, and there is no need for an additional air inlet to be provided to moderate any imbalance in pressure resulting from operating a small exhaust fan device. Information provided to the Department by the Manufactured Home Research Alliance that was collected for the Energy Star Program also indicates there is sufficient leakage, even in tight homes, to handle any imbalance in pressure caused by the whole-house ventilation system.

Comment: Locating the whole-house ventilation system in the bathroom is not a good idea. Two commenters wrote that consumers, attempting to lower their electric bills, will not operate bathroom fans as often as necessary and the effectiveness of the fans will thus be limited. One commenter wrote that the proposed change requires consumer education on the topic of the whole-house ventilation system.

HUD Response: The alternative permitting the whole-house ventilation system to be installed in the bathroom is not included in the final rule. The Department agrees with the commenters that consumers may not utilize the bathroom fans often enough and has deleted this alternative for whole-house ventilation from the final rule.

Comment: Whole-house ventilation is a good idea. One commenter wrote that the proposed rule would improve indoor air-quality, reduce energy consumption associated with mechanical ventilation systems, and provide crucial consumer education. Proper consumer use of quiet, reliable whole-house exhaust fans will reduce mold problems associated with internally generated moisture, and indoor air pollutant concentrations. The proposed whole-house ventilation strategy has been successfully employed in over 100,000 HUD-code homes built in the Pacific Northwest.

HUD Response: The Department agrees that the concept of effective whole-house ventilation is an effective strategy to improve indoor air quality overall and that the revisions to the current requirements will further assist consumers in dealing with unwanted moisture and indoor air pollutants in their homes.

Fireblocking Comments

The December 1, 2004, proposed rule would have amended § 3280.206 by clarifying existing language, locations, and acceptable materials that may be used where fireblocking is required. However, HUD had proposed modification of a portion of MHCC's proposal that would have permitted mineral wool or loose fill insulation to be considered acceptable fireblocking material.

Comment: HUD should adopt MHCC's recommendations allowing the alternative fireblocking materials. One commenter wrote that HUD stated the removal of the recommended language allowing mineral wool and loose fill as acceptable fireblocking material was because these types of insulation have not been adequately evaluated for transportation effects that could cause settling or shifting when installed around pipes or vents in furnace and water heater compartments. The commenter wrote that the original MHCC recommendation addressed these concerns with alternative wording. The commenter recommended allowing the use of the fireblocking alternatives when the manufacturer can demonstrate the materials will remain in place. Another commenter wrote that HUD modified MHCC's recommendation by totally rejecting the inclusion of loose fill insulation as fireblocking material not only in roofs, but in walls and floors as well. The same commenter felt that MHCC's recommendations would address HUD's concerns about the material staying in place during transportation, etc., as long as the materials would have to pass tests that address HUD's concerns before they could be used. A third commenter wrote that HUD should reconsider its rejection of the use of mineral wool or loose fill insulation as an acceptable fireblocking material, because technical data shows that such material, when properly installed to a specified R value, is effective when used as fireblocking.

Two commenters wrote that they supported fireblocking because it brings the Construction and Safety Standards into closer consistency with other building codes.

HUD Response: The final rule includes all of the provisions for permitting fireblocking that were identified in the proposed rule and does not include requirements for loose fill insulation to be used as an alternative fireblocking material. However, in view of the comments received, the Department would reconsider its position to permit loose fill insulation to be used as fireblocking, if an acceptable testing procedure could be developed by MHCC or a voluntary consensus organization.

Body and Frame Requirement Comments

A. Body and Frame Requirements—Alternative Test Procedures

The December 1, 2004, proposal would have amended § 3280.303(g) by eliminating the requirement that a manufacturer submit alternative testing procedures to HUD, except for testing methods involving one-piece metal roofing as would be required in § 3280.305(c)(1)(iii). HUD sought comments specifically on whether the final approval of alternative test methods should be solely the responsibility of DAPIAs or whether DAPIAs should only be allowed to provisionally approve the test method subject to HUD's approval.

Comment: DAPIAs should be allowed to approve alternate test methods. One commenter wrote that MHCC unanimously approved delegating approval to DAPIAs in its recommendation to HUD and still stands by that position. The commenter explained that HUD currently relies on DAPIAs to review and accept or reject all drawings, calculations, etc., supplied by the manufacturer for the home design. Another commenter stated that current regulations at §§ 3282.203(b)(11) and 3282.361(b)(2) require the homebuilder to submit reports for all tests and submit all design drawings and that § 3282.203(c) provides the necessary regulations to carry out the quality assurance manual approvals, such as review and approval of the designs, testing, etc., used by manufacturers to build according to the Construction and Safety Standards. Commenters noted that they believe this authorization to be in line with current DAPIA authority and that HUD has sufficient remedies under the regulations to deal with a DAPIA's poor performance in any area of responsibility. Two commenters also wrote that it sometimes takes an extremely long period of time for HUD

to finally approve a suggested new method, thereby holding up the implementation of the material, component, or system being proposed by a manufacturer, and that DAPIAs are the most likely group to make informed decisions since they are familiar with the particular manufacturer and its design process. Another commenter wrote that ''[i]n a word, the system was working fine before HUD added this pre-approval criteria to 303(g) about 10 years ago and it will work fine once this item is eliminated.'' Another commenter explained that HUD should consider the changes in the law contained in the amendments made to the Act. Specifically, section 604(b)(3) of the Act calls for MHCC review of ''interpretative bulletins.'' Requiring HUD staff to pre-approve these test procedures could be considered equivalent to the issuance of interpretative bulletins. Another commenter wrote that HUD has interpreted § 3280.303(g) to mean that only manufacturers, not suppliers, can request such testing work be done. That has necessitated suppliers having to ''recruit'' cooperative manufacturers to ''sponsor'' the test requests for the benefit of the industry. This has caused unnecessary delay that could be eliminated by DAPIAs simply working with the technical staff of a supplier to develop a ''universally acceptable'' test protocol.

One commenter wrote that HUD should review all alternative testing procedures prior to their implementation.

HUD Response: The Department generally agrees with the commenters regarding the use of DAPIAs to approve other alternative test methods and procedures developed by manufacturers. As HUD has no regulatory authority over suppliers, the final rule continues to require manufacturers to develop the alternative testing procedures. Accordingly, the final rule allows DAPIAs to approve alternative testing procedures developed by manufacturers and for the procedures to thereby become part of the manufacturer's approved designs, except for testing procedures for one-piece metal roofing system designs. (See the discussion below under ''B. Body and Frame Requirements—Structural Design Requirements'' regarding testing procedures for one-piece metal roofing systems.)

B. Body and Frame Requirements—Structural Design Requirements

1. The December 1, 2004, proposed rule would have amended § 3280.305(c)(1)(ii) by adding a footnote to permit the use of certain one-piece metal roofing without structural sheathing in the high Wind Zones II and III. HUD proposed to modify MHCC's recommendation for one-piece metal roofing installed in high wind areas to be consistent with Interpretative Bulletin (IB) I–2–98 by requiring prior Departmental approval of any testing procedures used to demonstrate the acceptability of such systems.

Comment: HUD should not have modified MHCC's recommendation for adding footnote 9 to the Table in § 3280.305(c)(1)(ii) for one-piece metal roofing and should not have required the testing procedures for these systems to be subject to HUD approval. Two commenters wrote that HUD has modified MHCC's proposal and in so doing would destroy the original intent of MHCC's recommendation. The commenters explained that HUD states it is modifying MHCC's proposal to make it more consistent with IB I–2–98, but the intent of MHCC's proposal was to eliminate the IB by rendering it null and void, not to conform to it. The commenters wrote that HUD had received 12 comments on the IB, all of which were negative; however, HUD ignored all comments and issued the IB as proposed. The commenters wrote that the addition of the language in the footnote is confusing, because all test methods are already required to comply with § 3280.303(c) and (g) and § 3280.401; thus, the addition of this language serves no purpose. HUD is trying to re-impose the same pre-approval of test methods that would be eliminated by § 3280.303(g) in the proposed rule. There is no valid reason for such pre-approval by HUD. The Department's proposal lacks justification as to why it believes pre-approval by its staff for this product/design is necessary when it is agreeing to eliminate pre-approval for all other current/future products and designs by changing § 3280.303(g). The one-piece metal roof catenary design is much stronger than the prescriptive roof sheathing option currently permitted by footnote 7 to the Table for Resisting Uplift Loads.

HUD Response: The final rule continues to require HUD approval of testing procedures for one-piece metal roofing due to the large number of failures of these systems that occurred in the 2004 hurricanes in Florida. However, the requirements will be contained in § 3280.305(c)(1)(iii) of the Construction and Safety Standards rather than in a footnote to the Table of Design Wind Pressures as indicated in the preamble of the proposed rule. Presently, there is no recognized or available testing procedure that will comprehensively and adequately evaluate the dynamic and fluctuating loading effects of the wind on the metal roof membrane and its fasteners to resist and their resistance to the applied stresses and forces on these elements in high wind areas. In addition, in the Department's report on damage assessment to manufactured homes caused by Hurricane Charley, it was noted that the roof and walls performed significantly better for the post–1994 homes, in which metal roofing systems were not used, as compared to homes constructed prior to the effective date of the standards for high wind protection. The State of Florida also concluded from its field investigations following last year's devastating hurricanes, that one-piece membrane roofs did not perform well, that inadequate fastening of metal roofs allowed a large percentage of them to be blown off manufactured homes that were built prior to the implementation of the wind standards in 1994. This, the State said, may have led to the total loss of these homes. HUD engineers inspecting the damage caused by the hurricanes in Florida also observed numerous failures of metal roofing systems used in pre-1994 constructed homes. In view of the above concerns, the final rule requires HUD approval of test methods for one-piece metal roofing systems. However, the Department would be willing to reconsider this decision, if a voluntary consensus test standard were to be developed that would adequately assess the wind effects on one-piece metal roofing membranes and their fastenings.

2. The December 1, 2004, proposed rule would have amended § 3280.305(c)(3) by incorporating a new paragraph (iv) to add a roof load requirement for skylights of the zone for which it is designed.

Comment: The skylight load requirements described in § 3280.305(c)(3) are a good idea. Two commenters wrote that the skylight load requirements establish necessary performance requirements for skylights.

HUD Response: The Department agrees and is including the proposed roof load performance requirements for skylights in this final rule.

3. The December 1, 2004, proposed rule would have amended § 3280.305(e) by clarifying the required performance of fasteners and the connecting mechanisms for joining the major structural elements of manufactured homes, and would specify a continuous load path for imposed forces to the home's foundation/anchorage system.

Comment: The load path for foundation and anchorage systems described in § 3280.305(e)(1) is a good

idea. One commenter wrote that the proposal for foundation and anchorage systems provides consistency within the industry.

HUD Response: The Department agrees and is including the proposed revision to the current requirements for fastening of structural systems in the final rule.

4. The December 1, 2004, proposed rule would have amended § 3280.305(e)(2) by reducing the minimum thickness requirements for steel strapping or brackets required in Wind Zones II and III from 26 gauge (0.0179″) to 0.016″.

Comment: The proposed reduction in steel strapping requirements described in § 3280.305(e)(2) should be accepted and additional testing is not needed. One commenter wrote that additional requirements for testing in high wind regions are not required and should not be imposed. The commenter wrote that past instances of staples inadvertently driving through metal strapping of lesser thickness may reoccur should this proposal go into effect. One commenter asked if the DAPIA accepts these design changes to reduce the minimum thickness of steel strapping for Wind Zones II or III, then why would additional testing to verify changes of this nature be required? As long as the DAPIA is satisfied, there should be no reason to require further testing. Two other commenters recommended that the final rule does not need to require ''suitable load testing.'' HUD has always allowed calculations and analyses to be used instead of testing. Testing, while more specific than calculations, is generally less conservative. It is generally understood that HUD will not allow testing of simple assemblies that can be easily calculated. Some of the connections used in high wind regions would fall into this situation and need to be calculated anyway. This change is also consistent with the preference to use ''performance requirements'' set forth in § 3280.1. Another commenter wrote that a manufacturer should be allowed to choose to utilize larger brackets, more fasteners, and stronger strapping to allow for greater spacing of the anchors and should not be penalized through prescriptive requirements. Another commenter wrote that it is not clear why critical connections cannot be justified by calculations or tests acceptable to the DAPIA and that it may be confusing as to which connections are ''critical,'' since it would seem that most connections are critical for all wind zones. The Manufactured Home Construction and Safety Standards already require a Professional Engineer or Architect to seal all Wind Zone II/III calculations, tests, and details.

HUD Response: The final rule permits the use of thinner .016 inch steel strapping or engineered connectors provided they are installed at 24 inches on center in Wind Zone II and 16 inches on center in Wind Zone III. The final rule also permits a combination of strapping or engineered connectors and structural rated sheathing or structural rated wall sheathing alone when it overlaps the roof and/or floor and is substantiated by either engineering calculations or suitable load to tests.

5. The December 1, 2004, proposed rule would have amended § 3280.305(g)(3) by requiring wood panel products used as floor or subfloor materials on the exterior of the home to be rated for exterior exposure and be protected from moisture by sealing or applying nonabsorbent overlay with water resistant adhesive.

Comment: The floor rating and moisture requirements described in § 3280.305(g)(3) are not a good idea. One commenter wrote that the proposed body and frame requirements will not provide the protection desired. The exterior rated floor materials provide protection only during the construction process. Therefore, the sought-after extended life of the material is not achieved.

HUD Response: The final rule requires wood panel products used as flooring or sub-flooring on the exterior of the home to be rated for exterior exposure and be protected from moisture by sealing or by applying a nonabsorbent overlay with a water resistant adhesive. HUD does not agree with the commenter regarding the extent or period of protection from the requirement that panels be exterior rated, as these panels will require the use of moisture-resistant adhesives in their construction that will enhance their durability. These added provisions will also provide protection against deterioration of exterior floor decking materials that are exposed to moisture. In particular, when materials such as particleboard become saturated with moisture, significant structural damage can occur. In addition, the requirement that panel products be rated for exterior exposure will assist in identifying those materials that are suitable for use in exterior applications.

6. The December 1, 2004, proposed rule would have amended § 3280.306(b) by requiring that each column support pier location required along the marriage line(s) of multi-section manufactured homes be identified at each location by paint, label, or other acceptable methods.

Comment: Identifying the marriage column support locations as described in § 3280.306(b) is not a good idea. One commenter stated that the drawings and specifications provided with each home already show the required locations for the centerline pier supports and are available to the retailer, installer, and consumer prior to the delivery of the home. The foundations or support systems for today's multiple section manufactured homes are largely prepared before the arrival of the home on the home site. Thus, the markings and their associated costs will be fundamentally wasted. The proposal would further require that the marking be visible after the home is installed even though properly placed foundation supports will mask the markers from view. This change would place too much reliance on the correct placement of the proposed markers.

Two commenters wrote that identifying the marriage column support locations described in § 3280.306(b) is a good idea and that the recommendation will improve home installation compliance and subsequently improve the longevity of manufactured homes at a minimal cost to the homeowner. Marriage wall column support location errors are one of the major problems found during installation inspection. One of the commenters also wrote that the requirements would improve home installation compliance and subsequently improve the longevity of manufactured homes at a minimal cost to homeowners. In addition, members of the DAPIA Technical Advisory Group, at its March 2005 meeting, recommended that other pier locations, such as perimeter and shear wall support locations required by the manufacturer's designs and instructions, also be identified.

HUD Response: The final rule requires identification of each column pier support location along the marriage line, as well as for each pier location required along the perimeter of the home, each required shear wall support location, and other special pier support locations specified in the manufacturer's instructions.

Formaldehyde Health Notice Comments

HUD did not accept and include in the December 1, 2004, proposed rule, MHCC's recommendation that would have removed the Health Notice on formaldehyde emissions (the Health Notice) currently required by § 3280.309 of the Construction and Safety Standards.

Comment: The decision to continue to post the Health Notice in each manufactured home as described in

§ 3280.309 is contradictory to MHCC's recommendation. One commenter wrote that HUD rejected the proposed MHCC recommendation not to prominently display the Health Notice in each manufactured home. The commenter stated that, contrary to HUD's assertion that MHCC did not provide any data supporting its recommendation to remove the requirement, MHCC discussed this issue with HUD at MHCC meetings in 2004, and reviewed several documents related to formaldehyde. The commenter stressed that it is not recommending any changes to the current standards regarding the formaldehyde emission controls; the commenter is only recommending changes to the Health Notice. The commenter continued by stating that all of this information was considered by MHCC in coming to its decision to require that the Health Notice on formaldehyde be placed in the homeowner's packet rather than having it prominently displayed in the home.

A commenter wrote that the decision to continue to post the Health Notice in each manufactured home as described in § 3280.309 stigmatizes the manufactured home industry. The commenter is disappointed that HUD did not issue for public comment the proposal to eliminate the requirement for the Health Notice to be placed in manufactured homes. Manufactured homes are the only homes in America that must display these notices and they stigmatize manufactured homes. Another commenter wrote that the formaldehyde notice serves only as a sales deterrent, while contributing to existing misunderstanding by the public regarding health-related issues associated with formaldehyde. The commenter urged HUD to reevaluate its decision on the Health Notice and put it forth for another round of public comment. One commenter wrote that this notice shouldn't be displayed so prominently and asked, ''Why should it be the first thing a prospective buyer sees when they enter a new manufactured home?'' Another commenter wrote that for the past 20 years formaldehyde levels in manufactured housing have declined so that they are no higher than in any other residential structure. The manufactured home product and materials used to construct it have progressed to the point where the need for a displayed Health Notice ''only contributes to the public's notion that manufactured homes are somehow ''inferior'' to other types of housing.'' Other commenters suggested that if such a warning is still deemed necessary, then the warning should be included in the Homeowner's Manual with an explanation that all homes contain some amounts of formaldehyde.

Some commenters wrote that the decision to continue to post the Health Notice in manufactured homes as described in § 3280.309 ignores current and available scientific evidence that formaldehyde emissions have been greatly reduced. HUD should reconsider its rejection of MHCC's proposal in light of current research that is available to support MHCC's recommendation. Specifically, three commenters wrote that the Manufactured Housing Research Alliance (MHRA) has produced the most recent and up-to-date study on the health risks of formaldehyde in manufactured homes. ''Formaldehyde Concentrations in Manufactured Homes: The Current Situation'' (July 2004) investigates this issue from several different aspects and shows that formaldehyde should no longer pose any greater concern than in conventional housing. One commenter continued by stating that ''[e]ven though it is only one paper, it is a summation of many other studies that are more current than the ones used by HUD almost 20 years ago when the notice became part of the Standards.'' The commenter wrote that the language of the Health Notice refers to the Ventilation Option, which was deleted in 1994. This Ventilation Option, formerly § 3280.710(g), was replaced by the Additional Ventilation requirement in § 3280.103(b). Another commenter wrote that consumer formaldehyde complaints have been essentially eliminated. Another commenter wrote that it is ''common knowledge'' that formaldehyde emissions in manufactured homes have been dramatically reduced since the requirement for the Health Notice was first imposed. Additionally, the commenter claimed that HUD implied that only manufactured homes are permitted to use construction materials containing urea-formaldehyde (UF) resins, and that this assertion is untrue as the commenter is not aware of such a restriction for modular or site-built homes. One commenter stated that the removal of the Health Notice would likely be supported by the findings in National Institute of Standards and Technology's (NIST) IAQ manufactured housing research with HUD's Healthy Homes Program and asked whether HUD consulted with NIST before rejecting MHCC's proposal.

Two commenters submitted six points to illustrate that data does exist showing that formaldehyde levels in today's manufactured homes have changed in the 20 years since Department regulations were implemented. Specifically, the six reasons listed are: (1) Gypsum wallboard has replaced the UF bonded plywood as the interior wall covering of choice; (2) maximum formaldehyde emissions from UF bonded plywood and particleboard wood product materials has been drastically reduced; (3) the HUD Code is the only model building code that regulates formaldehyde emissions levels, which makes it not likely that either manufactured home builders or homebuyers would develop a rare nasal cancer; (4) the HUD Code ventilation requirements increase the volume of indoor air exhausted from the home, which can dilute any indoor air pollutants; (5) one of the original reasons for singling out HUD Code homes as having formaldehyde problems was the small home size; now, however, as floor size increases, the volume of air in the living space increases, and the dilution of air borne contaminants can be reduced; and (6) the measured concentration of formaldehyde levels has been on a downward trend since 1985.

HUD Response: HUD had not accepted for inclusion in the proposed rule MHCC's proposal to remove the requirement to temporarily post a Health Notice on formaldehyde emissions in each manufactured home (24 CFR 3280.309), because HUD has not found it supported by a sufficient factual and scientific record. As indicated in the proposed rule, a determination to discontinue the Health Notice would require a similar level of factual and scientific support that was provided to HUD when the rule was being promulgated. As also indicated in the proposed rule, HUD recognizes that improvements have been made in particleboard and plywood panel processing resulting in lower emission levels than from panels bonded with UF resin systems that were available at the time of the implementation of the Department's formaldehyde emission control requirements. HUD also recognizes that the measured formaldehyde concentration levels in manufactured homes produced since 1985 is significantly lower than in homes built prior to the implementation of the Construction and Safety Standards. HUD is also aware, however, that the sample of homes studied, as indicated in the MHRA report referenced in the comments [''Formaldehyde Concentrations in Manufactured Homes, The Current Situation''] is extremely small in comparison to the large number of homes produced during the same period

and that the sample of homes studied were subject to a variety of testing parameters and measurement methods. This leaves some question as to the statistical validity and overall confidence in the test results due to the relatively small sample size of homes evaluated. Further, even the MHRA report states: ''The health consequences of various formaldehyde levels continue to be a topic of debate among researchers. Particularly, at very low concentration levels (below 0.1PPM) there is no consensus on safe levels of durations of environmental formaldehyde exposure.'' However, as indicated in the preamble of the final rule on formaldehyde in 1984, there is a sector of the population that has greater sensitivity to and is at more risk of formaldehyde's irritant effects and that will react adversely to formaldehyde at extremely low levels of exposure. This includes the elderly, young children, and individuals with a history of asthma, allergies, or lung problems. The purpose of the Health Notice is to advise prospective purchasers that the home contains materials that emit formaldehyde and to describe acute symptoms that may occur under formaldehyde exposure for those individuals who may be at greater risk.

However, as indicated in the preamble of the proposed rule, HUD will continue to study the formaldehyde issue—including reviewing any new scientific evidence—and intends to consult with the Consumer Product Safety Commission, the Environmental Protection Agency, and the Department's Office of Healthy Homes to study the health risks to occupants at current formaldehyde exposure levels to determine if any regulatory controls are still needed to limit formaldehyde emissions in manufactured homes. As part of its review and evaluation, HUD will also consider the requirements of other building codes as they may relate to formaldehyde exposure and indoor air quality for single-family residential construction. HUD intends to work with MHCC in developing and supporting any further rulemaking proposals on formaldehyde.

Roof Truss Testing Requirement Comments

Based on the recommendations of MHCC, the December 1, 2004, proposed rule would have amended § 3280.402 by providing more stringent initial qualification of truss designs and by expanding and clarifying the requirements for follow-up testing to better ensure that subsequent production of trusses will meet the requirements of the Construction and Safety Standards.

Comment: The test procedures for roof trusses, as described in § 3280.402, should be severed from the remaining proposals, rejected by HUD, and remanded to MHCC for further consideration. One commenter wrote that the revised test protocol will lead to destructive testing and could limit truss designs that would ultimately pass the non-destructive test. Certain truss designs could be eliminated. The best route to take is to send the proposal back to MHCC for further study. If these revised test protocols are implemented by final rulemaking, the industry might have to go to totally engineered truss designs, which would be more expensive for the industry. Another commenter stated that the recommended revisions were extracted from the proceedings of the consensus committee and the National Fire Protection Association (NFPA) NFPA 501 Standard on Manufactured Housing, which were based on research conducted by the National Association of Home Builders Research Center (NAHB–RC). The commenter further stated that neither organization had a mandate to consider cost-impact in proposing standards or formulating the recommendations from its studies. Similar concerns were expressed about the NFPA 501 Standard on Manufactured Housing from which these proposals were derived.

Another commenter wrote that concerns have been expressed by and to MHCC members about the more stringent qualification testing of truss designs that have been talked about and supported by the industry, code development work groups, and task forces over the last ten years. The commenter stated MHCC's consensus development process lacked adequate consideration of the true costs associated with the adoption of this proposal, the impact these changes may have on the testing procedures and the industry, and the proposal's impact on roof truss home design and future innovation. The commenter asked that HUD remove this recommendation from the rule and return the proposal to MHCC for further consideration and development.

One commenter wrote that the test procedures for roof trusses, as described in § 3280.402, are not consistent with statutory directives. Although the proposed rule's wording closely follows the text found in NFPA 501, Standard on Manufactured Housing, published by NFPA, the NFPA standard is not in use for manufactured housing and the NFPA is not under a mandate from Congress to protect the affordability of manufactured housing. NFPA 501 and the proposed rule are inconsistent with the model building codes currently in use for site constructed home and factory built modular homes. NFPA 501 and this proposal require excessive data collection and a more stringent recovery deflection limit. Additionally, the commenter stated that the cost of § 3280.402 will adversely affect the affordability of manufactured housing and will stand as an obstacle to the accomplishment and execution of section 602(b)(2) of the Act, which states that a purpose of the Act is to ''facilitate the availability of affordable manufactured homes and to increase home ownership for all Americans.''

One commenter wrote that the new roof truss test procedures as described in § 3280.402 will not be cost-effective. Eliminating the option of 1.75x overload ends one cost effective way of building the homes at the lower end of the manufactured housing market and will place additional costs on sections of the market that can least afford it. Two commenters wrote that the change to the testing procedure will cost much more than the $77.28 cited by HUD. The commenters stated that their truss suppliers place the price per truss for Wind Zone I at 15 to 25 percent, making the eventual cost to the consumer about $325 '' far more than the $77 cited by HUD. Other commenters wrote that deleting the 1.75 proof load test for roof trusses will increase truss member sizes, thereby increasing the cost of trusses by up to 25 percent. This additional cost may add up to $600 per home. One commenter wrote that increased top and bottom chord sizes could raise overall depths of trusses, as well as the transportation height of the home. In the Eastern United States, where overpasses are low, homes will need to be rerouted, resulting in increased shipping costs of $800 and beyond. Finally, another commenter wrote that the recommended revised truss test protocol needs further study and evaluation before implementation. The commenter stated that many truss suppliers have indicated that there may be a 25 percent increase in costs for truss design and testing depending on the style of roof design being considered. Every truss design would need to be re-qualified under the test procedures, and cost estimates run from $200 to $500, far more than the $77.28 per home as indicated.

Two commenters asked specifically why the new roof truss test procedures as described in § 3280.402 are needed. The commenters wrote that they do not see any information indicating that

trusses are failing. They further inquired whether the study referred to in the proposal was conducted during the 1980s? If so, today's trusses are much improved from the trusses referred to in that study. Also, deleting the 1.75 proof tests will limit existing designs and prevent new innovative designs by increasing the top and bottom chord sizes. This deletion will create criteria that are more stringent than and inconsistent with those model building codes that require only a minimum test period of ten seconds for test loads equal to 1.5 times the design wind load. Two commenters wrote that these new criteria will create a huge backlog in truss retesting and redesign, adding to the costs that could be passed on to the consumer. Further, assuming the time frame to perform this task is set at 180 days, that is not enough time to complete the reviews, retests, and approvals. Two commenters wrote that low-sloped cathedral designs, which are common in the industry, will be eliminated. One commenter wrote that the proposed truss testing change should be returned to MHCC for further evaluation. The same commenter wrote that HUD should continue to allow the 1.75 proof load test, because the added costs of eliminating this acceptable test do not appear to be offset by safety considerations.

One commenter wrote that the requirement that deflection of bottom chord be measured, at a minimum, at the truss midspan and panel points is overly burdensome and completely unnecessary. The commenter stated that for many trusses, this requirement would result in a minimum of nine or ten points of deflection measurement during testing, and it is difficult to obtain these deflections with dead load hanging from the bottom chord of the truss at 12 inches on center. Several commenters wrote that measuring deflection at each panel point, mid-span of the truss, and mid-span between each panel point is not necessary and that the current checks at quarter points and mid-span should be more than sufficient. A third commenter wrote that this change will significantly increase the time to perform truss testing and will increase the cost to perform required truss testing for each truss design.

One commenter wrote the dead load test procedures as described in § 3280.402(d)(1) are too expensive and not necessary. HUD should revise the new proposed requirement to add dead load to both the top and bottom chord of the truss so that this is only required if the actual bottom chord dead load exceeds 5 psf; otherwise, allow the entire dead load to be applied to the top chord as is currently permitted. For small bottom chord dead loads (up to and including 5 psf), this added step is not necessary and needlessly adds to the cost of testing.

Another commenter wrote that the live load test procedures as described in § 3280.402(d)(2) are dangerous. In 1994, HUD and NAHB ran proficiency tests comparing tests that pulled on the top chord to test in the inverted position. The tests determined that pulling on the top chord was difficult, impractical, dangerous, and yielded inconsistent results. It was determined that testing the truss in the inverted position provides adequate results. Testing in accordance with existing uplift requirements is simple and provided consistent results. Testing uplift in accordance with the new HUD proposal will have a significant cost impact on the truss approval process. The set-up procedure will take three to four times longer, which will increase the cost for testing a new design substantially. All modifications to truss testing should be delayed until such studies can be prepared for review.

One commenter wrote that the overload phase as proposed in § 3280.402(d)(4) is too stringent. The test procedure for the overload phase would be increased to dead load plus 2.5 times the live load. Although this more stringent truss loading criteria has already been adopted by some manufacturers, combining this with the more stringent deflection acceptance criteria may cause some truss designs to fail that would otherwise be acceptable under the existing provisions.

Several commenters wrote that the acceptance criteria for truss designs, as proposed in § 3280.402(d)(5), are too conservative, inconsistent with building codes, and too expensive. The recovery deflection of L/480 within five minutes after live load removal is too conservative and many manufacturers have permitted up to four hours of recovery time to qualify truss designs. Another commenter wrote that the recovery requirement is inconsistent with the model building codes, which require recovery of not less than 75 percent of the maximum deflection within 24 hours after removal of the load. Another commenter wrote that HUD should remove the requirements to measure no load to dead load deflection and the limit for the same, because this is a totally meaningless requirement. The deflection from no load to dead load is normally compensated for by building camber into the truss. This added step will add needless cost to the test procedure. The commenter requested that HUD revise the proposal for up to four hours for recovery deflection to reach L/480 or better. The commenter explained that five minutes may not be adequate time to allow recovery to occur and could eliminate otherwise acceptable designs thus adding cost. Some of the proprietary criteria in use today by some home manufacturers specifies four hours and ''is working fine without problems.''

One commenter wrote that the uplift load test procedure for roof trusses as proposed in § 3280.402(e) makes it difficult to test and require a change of testing facilities. The test procedure for overload phase requirements increased to 2.5 times the new uplift load for one minute, which is an increase from the 1.75 overload factor of the current standard. Additionally, the test procedure has been revised to provide uplift to the top chord of the truss design and not the existing test set-up of inverting the truss and pushing down on the bottom chord. Truss designs may not be able to be tested due to their current configuration and may not provide flexibility in testing for the tension device placement as a 12-inch spacing might provide. Also, no testing facility that currently qualifies HUD Code home roof trusses would be capable for testing trusses as described by the revised test protocol without a lengthy process to change the test set-up. Another commenter wrote that there have been no documented truss failures due to existing design criteria since the uplift testing went into effect in 1994. The HUD proposal for testing uplift requires 1″ wide straps attached around the top chord at 6″ o.c. In some cases, truss designs with closely spaced verticals and webs will be physically impossible to test to the 6″ requirement. This requirement would limit truss design and innovation. Pulling up on straps at 12″ o.c. provides the same uplift load and similar results as pulling on the uplift straps 6″ o.c. Additionally, the proposed method requires cylinders spaced at 12″ o.c., to apply 6″ o.c. uplift strapping. This will require some truss manufacturers to redesign their current truss testing equipment, which commonly has cylinders at 24″ o.c. This retrofit will be costly and time consuming. One commenter wrote that compliance with the requirement cannot typically be achieved at panel point because of the width of connector plates. One commenter supported the conversion of the uplift test to a more reasonable appropriate uplift test. The commenter wrote that the spacing of the uplift points, however, appears to be too conservative. Instead of every 6″, it

seems that every 12″ would be sufficient and be easier to convert existing testing equipment with hydraulic cylinders at 24″.

Finally, commenters urged HUD to allow a lengthy, reasonable time period for phase-in of the new requirements for truss testing similar to what has been done in the past. It is hoped that HUD will allow 12 months for all testing to be completed.

HUD Response: In view of comments received from the public, the Department is returning this proposal on truss testing procedures to MHCC for further consideration and requests the following be considered by MHCC during its deliberations:

1. Whether the non-destructive testing procedure for roof trusses that permits a lower overall safety factor to be used in conducting the tests based on a presumed low failure rate for roof trusses should be eliminated.

MHCC could consider including the non-destructive procedure, if adequate safeguards are provided to assure that initial qualification tests would be conducted using minimum quality of materials and workmanship or if a statistically valid sample of trusses is tested in lieu of the minimum requirements. In addition, enhanced follow-up testing provisions would be needed to account for the lower factor of safety of 1.75 currently permitted by the non-destructive testing procedure.

2. The need for the upright tension tests to evaluate the uplift resistance of the trusses.

Tests conducted by the NAHB Research Center indicated that trusses tested in the inverted position consistently failed at average loads greater than trusses tested in the upright position and had lower mid-span deflections than trusses tested in the upright position. In addition, the failure modes were different for some truss designs when tested in the upright position as compared to the inverted position.

3. Should the factor of safety for uplift testing be reduced from 2.5 to the current requirement of 1.75 times the design wind pressures in consideration of comments received regarding safety during testing.

4. The costs associated with any recommended revisions to the truss testing requirements.

HUD's decision to not make final the proposed rule section, as recommended by MHCC, is consistent with the record of comments received from the public, including MHCC itself (the Committee having reconsidered its prior position). However, HUD views truss testing procedures as too important a safety matter to leave unaddressed. The standards in place (*i.e.*, reflected in the current regulations) have not been modified in many years. The issue, having been raised, needs to be examined to determine whether, in fact, existing standards are adequate to protect homeowners in all geographic areas of the country. Accordingly, HUD anticipates MHCC will expeditiously re-evaluate and resubmit proposed truss testing procedures. HUD will work closely with MHCC in evaluating any new proposals for truss testing procedures and may amend HUD's requirements, as necessary, in a future rulemaking.

Thermal Protection Comments

The December 1, 2004, proposed rule would have amended § 3280.504(b) to codify certain provisions of a waiver that permits manufactured homes intended to be sited in humid climates to have the vapor retarder installed outside of the home's thermal insulation.

Comment: The proposed condensation control and installation of vapor retarders described in § 3280.504(b)(4) is not practical and should provide exceptions. Several commenters stated that HUD should provide more exemptions, including: (1) Kitchen back-splash materials of less than 50 square feet in the area installed around countertops, sinks, and ranges; (2) bathroom tub areas and shower compartments; (3) cabinetry and built-in furniture, in any location; and (4) hardwood wall paneling used under chair rails in dining room areas, less than 50 square feet in area. One commenter explained that these construction features are commonly installed against exterior walls of manufactured homes and do not represent a large exposed wall where condensation due to the hot-humid climates would appear to be excessive. Also, a September 2000 MHRA study revealed that hardwood paneling is not detrimental to the established proposal waiver requirements of a minimum 5.0 perm rating. Another commenter wrote that it is absolutely necessary to provide some minor exception to the requirement that the interior finish have a combined permeance of not less than 5.0 perms. MHCC has already discussed with HUD the need to include these exceptions, which are part of further changes to the Construction and Safety Standards that have been approved by MHCC. These changes are in concept but have not yet been put into proposed rule form. The vapor retarder location specified in § 3280.504(b)(4) is an alternative to that called for in § 3280.504(b)(1) and therefore could not be used with a vented wall cavity specified in § 3280.504(b)(3). From a practical-usability standpoint, in order for the alternative vapor retarder location to be of any use at all, some minor exceptions are absolutely necessary to the requirement that the interior finish have a combined permeance of not less than 5.0 perms. These exceptions were recommended by MHCC and are also embodied in the NFPA–501 2003 edition at section 8.4.2.1.6. Another commenter wrote that the requirement to have the interior finish have a combined permeance of not less than 5.0 perms makes good sense, but a set of exceptions is necessary, because it is impractical to build a home with all interior surfaces at 5.0 perms or more. Without these exceptions, no manufacturer will be able to place the vapor barrier on the outside in the appropriate zones. HUD had similar wording in its April 2002 waiver, but without these necessary exceptions. As a result, virtually no manufacturer has been able to use the waiver. The only reason to restrict the permanence of the interior surfaces is to make sure any moisture that gets past the exterior barrier is able to exit the wall to the interior. These few suggested exceptions will not trap moisture in the wall. In fact, some materials are usually not tight-fitted against the framing; therefore, moisture should easily escape the cavity. The commenter also wrote that other building codes have no interior wall restrictions at all associated with vapor barriers. For instance, 2003 IBC—article 1403.3, 2003 IRC—article R318.1, and 2003 IECC—article 502.1 make no mention of interior perm ratings. HUD should allow these exceptions so the industry can catch up to present building science. Without these exceptions, the vapor barrier will remain on the inside in the hot, humid climate and moisture will be trapped in the home.

HUD Response: HUD agrees with many of the comments; therefore, the final rule in § 3280.504 now includes exceptions to the 5.0 perm requirement for interior finish materials of up to 50 square feet in area.

Comment: The focus of § 3280.504(b)(4) should be reducing air movement rather than vapor retarders. One commenter wrote that § 3280.504(b)(4) does not address any effective construction measure to reduce the larger problem of air movement into the wall cavity. In fact, the performance measure that would impact the reduction of air movement would be the use of a continuous air barrier. Homes with low permeable sheathings have

been observed in the Gulf Coast, and they have experienced moisture problems because the wood sheathing is installed with a required gap to allow for expansion and contraction. These expansion and contraction seams should be the focus, not just vapor pressure. The much larger problem involves large pressure swings in homes where mechanical equipment is operated.

HUD Response: HUD and MHCC may consider developing, in a future rulemaking, requirements for the use of continuous air barriers for exterior walls and requirements for expansion and contraction gaps in wall sheathing to reduce the amount of air movement in exterior wall cavities.

Comment: Ventilated walls as described in § 3280.504(b)(3) are not a good idea because there is no ventilation rate or calculated method shown that provides a minimum performance to reduce the amount of moisture. Also, whole-house testing has shown that air movement created by negative pressure draws moisture through construction seams. The creation of even more pathways by ventilating the wall will allow even more moisture to be drawn into the walls.

HUD Response: HUD, in coordination with MHCC, may consider, in a future rulemaking, eliminating the current alternative for controlling condensation in exterior wall cavities as is currently permitted in § 3280.504(b)(3) of the Construction and Safety Standards.

Comment: Reference to the American Architectural Manufacturers Association (AAMA) 1500 standard in § 3280.508(e) should be changed to the National Fenestration Rating Council (NFRC) 100 Standard. One commenter wrote that the final rule should eliminate reference to AAMA 1500 for the following reasons: Because the majority of manufacturers have moved to NFRC; the NFRC is supported by United States Department of Energy (USDOE) and Energy Star; HUD is the only federal agency still relying on AAMA 1500 thermal performance; and NFRC–100 labels provide consumers, plant, and IPIA data on the window, while the AAMA label does not provide that data.

Another commenter wrote that the proposed rule to permit window manufacturers the alternative to use NFRC 100 to rate window energy performance is a step in the right direction.

HUD Response: The final rule permits the use of either reference standard for rating window or glazing products for thermal transmittance and resistance to condensation.

Plumbing Systems Comments

The December 1, 2004, proposed rule would have amended § 3280.607(a) to require restricted flow faucets and showerheads and add a paragraph (b) to require the use of low water consumption toilets.

Comment: The proposal is consumer-friendly. Two commenters wrote that technology has improved low water consumption fixtures and faucets, so it is a sound proposal.

HUD Response: The final rule requires the use of low consumption water fixtures and toilets as indicated in the proposed rule.

Heating, Cooling, and Fuel Burning Requirement Comments

As recommended by MHCC, the December 1, 2004, proposed rule would have amended § 3280.709 by requiring the installation of a corrosion-resistant water drip collection and drain pan under each water heater.

Comment: The requirement was not developed with any justification and should be dropped. One commenter requested that this section be deleted. The commenter wrote that it believes that the proposal has not been developed in compliance with the HUD Final Information Quality Guidelines published in the November 18, 2002, **Federal Register** Notice. Specifically, the HUD Guidelines provide in Section VI that ''information [HUD] disseminates to the public is objective, useful, and has integrity.'' HUD has not presented any information to justify this requirement, including any economic or technical justification for the addition of a corrosion-resistant water drip collection and drain pan to be installed under each water heater. In addition, such a requirement will result in problems of installation, cost, drainage, and, for fossil fuel type water heaters, can result in the blockage of combustion air openings for water heaters that obtain combustion air from the bottom of the unit, a very typical manufactured home application.

Some commenters wrote that a drain pan would impede air flow into the water heater. One commenter wrote that to install a drain pan under the water heater would restrict the ability of the water heater to receive the proper amount of combustion air. Moreover, doing so would require modifications to the design and construction that could significantly increase the costs without any economic justification. Another commenter wrote that one-half of the gas-fired water heaters sold for installation in manufactured homes are of the direct vent design. This requires all air for combustion to enter the water heater directly from the outside. An air tube is provided that penetrates the floor under the water heater to supply the air from under the coach. Requiring a drain pan for this design would present a challenging sealing problem to make the drip pan effective. The commenter requested that paragraph (h) be revised to exempt water heaters of the direct vent ''through the floor'' design from the drain pan requirement. Also, the installation of a popular direct gas fired water heater would require an approximate four-inch hole to be made through the pan to provide for its combustion of air inlet. It is unlikely that water leakage in the water heater compartment could result in structural deterioration and damage; water heaters are too large in diameter to fit between floor joists as they are commonly installed. This proposal should be removed from consideration.

One commenter wrote that the drain pan issue is already addressed in a current requirement. The supplementary information provided for the proposed rule states that the present rule does not require that a drain pan be provided or that the water heater compartment be built in a protective manner, such as a shower stall, but fails to mention the requirement in § 3280.305(g)(2) that addresses the issue by requiring that wood, wood fiber, or plywood floors or subfloors in water heater compartments be moisture-resistant by sealing or by an overlay of nonabsorbent material applied with water resistant adhesive.

Two commenters wrote that the water drip collection pan requirement is a good idea and will eliminate problems caused by leaking water heaters at a minimal cost. The rule also brings manufactured homes up to date with other building codes.

HUD Response: Section 3280.709(h) of the final rule requires a corrosion-resistant water drip and collection pan to be installed under each water heater. Almost all electric or fossil fuel water heaters currently used in manufactured homes can be installed on a conventional water heater pan. Only a very small percentage of gas water heaters currently being used in manufactured homes cannot be set on a conventional pan due to an opening in the bottom of the water heater that is aligned with a hole in the bottom of the floor that draws combustion air into the appliance. Further, a drip pan could be designed to have a separate drain hole alongside the air inlet opening, which would allow those types of water

heaters to continue to be used. While the Construction and Safety Standards do require the floor decking directly under the water heater area to be moisture-resistant, the drip pan will help prevent water from collecting in the water heater compartment and circulating into surrounding areas, and being absorbed into surrounding gypsum panels, deteriorating and/or warping surrounding area floor decking, carpet, and padding. In addition, floor insulation and bottom board materials may also become saturated in surrounding areas due to the accumulation of water in the compartment, making those materials ineffective and possibly causing mold and mildew to form. The installation of the drip pan will enhance the home's durability at a minimal cost to consumers.

Electrical Systems Comments

Comment: The 1996 National Electrical Code (NEC) that HUD proposes to adopt is outdated. The manufactured home should meet the requirements of more current electrical code requirements, and thereby provide protection to home occupants that technology has made available since 1996. One commenter stated that the update to the 1996 NEC is not practical. The commenter stated that to adopt a code that is nine years behind the code now being adopted by many localities is ''ridiculous.'' The NEC 1996 edition is no longer in print and to require manufacturers to try and find this book so that they can determine what changes to the code affect them and what is the required standard they must meet is not logical. Another commenter wrote that hundreds or thousands of the 1996 edition of the NEC will have to be obtained if the code update goes into effect, and that if HUD Code homes are three or four revisions behind the NEC, it reinforces the perception that manufactured housing is ''inferior'' to other housing. Also, any upgrade to a more recent version of the NEC will require many electrical drawings to be revised. The commenter encouraged HUD to adopt the same ''phase-in'' program HUD used when changing to the new smoke alarm requirements. Another commenter wrote that the electrical standard should be updated to the 2005 edition of the NEC. The commenter noted that arc-fault circuit-interrupter protection that has been adopted in more recent versions of the NEC may have been the reason for proposing adoption of the 1996 version of the NEC. The commenter also agreed with MHCC's reluctance to adopt the requirements for arc-fault due to a lack of available product and technology in the market at this time, and would suggest adopting the 2005 NEC with an exception for the arc-fault protection requirements.

HUD Response: The Department agrees with the comments, and the final rule has been revised to incorporate the 2005 edition of the NEC. Also, as suggested by the commenters, the provisions for arc-fault circuit protection are not included in the final rule except that if such protection is installed, it must comply with all provisions of the NEC.

Comments Regarding Revisions to Standards Incorporated by Reference

Comment: The NEC HUD proposes to adopt is outdated. HUD should update all proposed changes to the standards incorporated by reference to the most recent editions of those standards.

HUD Response: See discussion under the Electrical Systems Comments heading.

Comment: HUD should review the two additional sets of MHCC recommendations and update any reference standard contained in this Notice of Propose Rulemaking (NPRM) to the latest available edition receiving MHCC approval. One commenter specifically cited, as an example, the Voluntary Standard for Utilization in Manufactured Homes, and AAMA 1704, Voluntary Standard: Egress Window Systems for Utilization in Manufactured Homes. HUD should take advantage of MHCC's reference standards update process by reviewing all ballots on file and suggesting the latest reference standard edition for proposed rulemaking.

HUD Response: The final rule does include some later editions of reference standards than were cited in the December 1, 2004, proposed rule. However, the final rule does not update to the 2002 edition of the AAMA 1704 standard for egress windows due to changes in the later editions that may affect the ability of an occupant to egress during an emergency. HUD, in coordination with MHCC, may also consider making further updates to the reference standards in future rulemakings.

Comment: One commenter wrote that HUD should correct the title of ASTM 773 to read Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units, and also correct the title of ASTM 774 to read Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units.

HUD Response: The final rule corrects the title of these two reference standards as recommended by the comment.

Comment: One commenter wrote that HUD should clarify whether ASTM E84–91 will be deleted from the HUD Code, because § 3280.203 still has both the ASTM E84 and the NFPA 255 test methods available to determine surface burning characteristics of building materials.

HUD Response: Section 3280.203(a) of the final rule permits the use of either test method.

Comment: One commenter recommended that certain updated reference standards be included in the final rule, including: (1) ANSI Z21.1—2000—Household Cooking Gas Appliances—§ 3280.703; (2) ANSI Z21.5.1—2002—Gas Clothes Dryers Volume 1—§ 3280.703; (3) ANSI Z21.10.1—2004—Gas Water Heaters—Volume 1, Storage Water Heaters with Input Ratings of 75,000 BTU per hour or less—§ 3280.703; (4) ANSI Z21.15 (R2003)—1997—Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves—§ 3280.703; (5) ANSI Z21.20—2000—Automatic Gas Ignition Systems and Components—§ 3280.703; (6) ANSI Z21.21—2000—Automatic Valves for Gas Appliances—§ 3280.703; (7) ANSI Z21.22 (R2003)—1999—Relief Valves—§ 3280.703; (8) ANSI Z21.24—2001 Connectors for Gas Appliances—§ 3280.703; (9) ANSI Z21.40.1 (R2002)—1996—Gas Fired Heat Activated, Air Conditioning and Heat Pump—§ 3280.703, § 3280.714(a)(2); (10) ANSI Z21.47—2003— Gas Fired Central Furnaces (Note—Incorporates provisions of Z21.64 now discontinued, that are related to direct vent)—§ 3280.703; (11) ANSI Z21.75—2001—Connectors for Outdoor Gas Appliances and Manufactured Homes—§ 3280.703; (12) ANSI/LC 1—1997—Gas Piping Systems Using Corrugated Stainless Steel Tubing—§ 3280.703; and (13) ANSI Z2223.1/NFPA 54—2002—National Fuel Gas Code—§ 3280.703.

HUD Response: Some of the recommended updates to the reference standards have been included in the final rule, as discussed and listed in section III.I. of this preamble.

Comment: One commenter stated that the referenced standard for gas piping systems using corrugated stainless steel tubing, LC–1–1997, should be moved from the Appliances category under § 3280.703 to Ferrous Pipe and Fittings, which is a more appropriate category. In addition, this referenced standard should also include its addenda, *i.e.*, LC–1a–1999, for completeness.

HUD Response: The final rule does not contain the reference standard for corrugated stainless steel tubing for use in gas piping systems, as the publication that was proposed to be included in the standards incorporated by reference was not available.

Comment: Two commenters wrote that in § 3280.705—Gas Piping Systems—a new section (5), titled Corrugated Stainless Steel Tubing (CSST) Systems, should be included. CSST interior gas piping systems should be designed and certified to the ANSI/LC–1, Gas Piping Systems Using Corrugated Stainless Steel Tubing, and should be installed in accordance with this code, the Z223.1/NFPA 54 National Fuel Gas Code, and the manufacturer's installation instructions. The commenter explained that since the HUD proposal is including a reference to the ANSI/LC–1 CSST standard, the proposed additional provision is needed in the interior gas piping section of the standard.

HUD Response: HUD, in coordination with MHCC, may consider provisions governing the installation of corrugated stainless steel tubing and the inclusion of an appropriate reference standard for CSST gas piping systems in a future rulemaking.

Comment: One commenter wrote that AFPA 1997, Manual for Engineered Wood Construction, is already an obsolete standard reference and should be updated to the 2001 edition. By updating it to the 2001 version, manufacturers could better take advantage of utilizing and sharing designs with modular packages.

HUD Response: The final rule incorporates the 2001 edition of the Manual for Engineered Wood Construction.

Comment: One commenter wrote that the ANSI/TPI 1 1990 has been removed from the list of reference standards and has not been replaced with an alternative design standard. All other model building codes cite the ANSI/TPI as the standard to use when designing metal plate connected roof trusses. Accordingly, the ANSI/TPI 1–2002 reference standard should be incorporated into the amendments to ensure all designs are calculated to the same criteria.

HUD Response: The standard for metal plate connected roof trusses currently incorporated by reference in § 3280.304 is TPI–85, not ANSI/TPI–1990. HUD is retaining its current requirement in the final rule and may, in coordination with MHCC, consider an update of this reference standard in a future rulemaking.

Comment: One commenter wrote that the final rule should contain a reference to Medium Density Fiberboard (MDF). MDF is a commonly used material for built-in cabinets and moldings in manufactured homes. MDF is a common core material used in Hardwood Plywood, ANSI/HPVA HP–1, and another standard referenced in 24 CFR 3280. A reference to MDF for Interior Applications, ANSI A208.2–2002, should be added to § 3280.304(b)(1).

HUD Response: HUD, in coordination with MHCC, may consider including a reference standard for MDF materials in a future rulemaking.

Comment: One commenter indicated that the reference to subsection 221 of the 1995 edition of the NFPA 58 is incorrect, and that the proper reference to relief valves in the 1995 edition is to subsection 2–3.2. The commenter explained that at a minimum, the agency should revise this reference; however, HUD should ideally refer to the 2001 edition of the NFPA 58.

HUD Response: The final rule updates the reference standard to the 2001 edition of NFPA 58 as suggested by the comments.

Other Public Comments

Comment: Generally, HUD should not require or include metric equivalents. The building community does not use metric on plans and specifications for any type of residential building. Metric units are necessary only for federally funded building projects. One commenter wrote that most aspects of the construction industry have been, and will continue to be, slow to convert to metric. A dual system would only create confusion and take up additional space. However, there may be some isolated cases where reference to metric units may be helpful. One commenter stated that requiring the use of metric units would be cumbersome and could be error-prone, and there appears to be no one in the United States construction industry who is using metric dimensions. Other commenters said simply that HUD should not require metric equivalents.

HUD Response: HUD, in coordination with MHCC, may address the use of metric equivalents, on an as-needed basis, in future rulemakings.

Comment: One commenter wrote that § 3280.707(d) contains minimum efficiency requirements for central heating and water heating appliances that need to be updated to the Department of Energy (DOE) minimum efficiency requirements.

HUD Response: HUD anticipates addressing the adoption of the DOE minimum energy efficiency requirements for central heating and water heater appliances, in coordination with MHCC, in a future rulemaking. HUD and DOE have jointly formulated, and are dedicated to, a housing energy efficiency policy that would serve the goal of reducing national and family energy needs.

Comment: One commenter wrote that § 3280.702 still has a definition for water heaters that has the term ''other than space heating.'' The commenter explained that there are many types of combination water heater space heaters that are used in manufactured homes, and this verbiage needs to be deleted.

HUD Response: HUD will refer this comment to MHCC and may consider the definition of water heaters in a future rulemaking.

Comments of the Manufactured Housing Consensus Committee

The following comments were submitted to HUD on behalf of the Manufactured Housing Consensus Committee (MHCC):

Comment: HUD should reconsider MHCC's recommendation to eliminate the requirement to post the Formaldehyde Health Notice in each manufactured home.

HUD Response: Please refer to the above discussion of public comments under the Formaldehyde Health Notice Comments heading of the preamble.

Comment: HUD should reconsider its decision to modify MHCC's recommendation on fireblocking in § 3280.206.

HUD Response: Please refer to the above discussion of public comments on fire blocking.

Comment: Testing Protocol approvals under § 3280.303(g) should be delegated to DAPIAs.

HUD Response: Section 3280.303(g) no longer requires prior HUD approval of alternative testing procedures except for procedures used to evaluate one-piece metal roof systems.

Comment: HUD should reconsider its modification of MHCC's recommendation and permit DAPIAs to also approve testing protocols for one-piece metal roofing.

HUD Response: Please refer to the above discussion of Body and Frame Requirement Comments, Part B–1.

Comment: HUD should concentrate on a single system of units and only refer to metric units when helpful.

HUD Response: Please refer to the above discussion of metric units under the Other Public Comments heading of the preamble.

Comment: Additional Testing is not needed for critical connections when engineering calculations are provided.

HUD Response: Please refer to the above discussion in Body and Frame Requirement Comments, Part B–3. Suitable load tests are now an alternative to engineering calculations rather than a mandatory provision in the final rule.

Comment: HUD should permit some minor exceptions to the requirements for interior finish materials in hot-humid climates.

HUD Response: Section 3280.504(b)(4) of the final rule includes minor exceptions to the 5.0 perm requirement for interior finish materials used in hot-humid climates.

Comment: HUD should return the truss testing recommendations in § 3280.402 to MHCC for further consideration.

HUD Response: Please refer to the discussion of public comments on truss testing. HUD is returning the truss-testing proposal to MHCC for further consideration.

III. Section-by-Section Revisions

The final rule amends the following sections of the Construction and Safety Standards in a manner that is different from the proposed rule and revises the incorporation by reference of the indicated reference standards.

A. Whole-House Ventilation

The final rule amends § 3280.103(b) by simplifying the requirements for sizing whole-house ventilation systems of manufactured homes. The final rule establishes a minimum and maximum capacity for these systems while continuing to require the systems to be balanced, requires combination passive and mechanical systems to be adequately sized and provided with inlets and exhaust to release any unbalanced pressure, no longer accepts passive-only systems, requires operating instructions for the system to be included in the consumer manual, and requires the operating switch to be identified with a label.

B. Firestopping

The proposed rule amending § 3280.206 changes the term ''Firestopping'' to ''Fireblocking'' to be consistent with current building code terminology and application. The final rule also replaces and clarifies existing language to better define locations where fireblocking is required.

C. Body and Frame Requirements

The final rule amends § 3280.303(g) by no longer requiring a manufacturer to first submit alternative testing procedures to HUD for approval when recognized testing procedures are not available, except as required by § 3280.305(c)(1)(iii) for one-piece metal roofing systems.

Section 3280.305(c)(1) is also being amended by adding a new paragraph (iii) to permit the use of certain one-piece metal roofing without structural sheathing in the high wind areas, provided HUD has approved the testing procedures to be used. The final rule amends § 3280.305(c)(3)(i) by adding paragraphs (A), (B), and (C) and by clarifying where middle and north zone roof load requirements would be applicable. The amended rule also now designates counties in certain states within the South or Middle Roof Load Zones where higher Middle or North Roof Load Zones are required.

Section 3280.305(c)(3) is amended by incorporating a new paragraph (iv) requiring that skylights must be capable of withstanding the roof loads for which the home is designed.

The final rule amends § 3280.305(e) by clarifying fastener performance requirements for joining the major structural elements of manufactured homes and by requiring that a continuous load path be provided for transferring all forces between elements and for carrying all imposed forces to the home's foundation/anchorage system.

The final rule amends § 3280.305(e)(2) by reducing the minimum thickness requirements for steel strapping required in Wind Zones II and III from 26 gauge (0.0179 inch) to 0.016 inch. Other alternatives, such as a combination of structural rated sheathing that overlaps the roof and/or floor and strapping, or engineered connectors or structural rated sheathing only, must be substantiated by either engineering analysis or suitable load tests. The final rule amends § 3280.305(g)(3) to require wood panel products used as floor or sub-floor materials on the exterior of the home to be rated for exterior exposure and be protected from moisture by sealing or applying nonabsorbent overlay with water resistant adhesive. This will provide protection against deterioration of exterior floor decking materials when exposed to moisture.

The final rule amends § 3280.306(b)(1) to require that each column support pier location required along the marriage line(s) of multi-section manufactured homes, at perimeter support locations, and at shear wall locations be identified at each pier location by paint, label, or other acceptable methods. These location identifications are to be visible after the home is installed.

D. Subpart E—Testing

The final rule amends § 3280.401 by clarifying that design live load deflection criteria do not apply when the structural assembly being evaluated does not include structural framing members.

E. Subpart F—Thermal Protection

The final rule amends § 3280.504(b) by adding new paragraphs (4) and (5) to permit the vapor retarder for exterior walls to be installed on the exterior side, rather than the interior side, of the wall insulation, or to be constructed with an external covering and sheathing having a combined permeance of not greater than 1.0 perms, provided that for either alternative that the interior finish and interior wall panel materials have a combined permeance of not less than 5.0 perms. However, based on the comments received, the final rule now also provides for certain minor exceptions to the 5.0 perm interior finish or wall panel requirements.

The final rule amends § 3280.508(e) by permitting window manufacturers the alternative to rate their window energy performance by utilizing National Fenestration Rating Council (NFRC) standard 100 or by using AAMA standard 1503 for this purpose. Inclusion of the NFRC standard would alleviate the need for those manufacturers who previously have been utilizing NFRC 100 from also having to test the AAMA 1500 and vice-versa.

The final rule will also amend § 3280.510 by incorporating a map that will designate the applicable Humid and Fringe zones by state and county. A reproduction of the map will now be required to be included on the Heating Certificate and could also be combined with the U_o map for those homes constructed for those zones in addition to or in combination with the Uo value map. A statement, ''This home is designed and constructed to be sited only in humid or fringe climate regions as shown on the Humid and Fringe Climate Map,'' will also be required in conjunction with the Humid and Fringe zone map on the Heating Certificate.

F. Subpart G—Plumbing Systems

The final rule amends § 3280.607(a) by requiring the use of restricted flow faucets and showerheads and by adding a paragraph (b) to require the use of low water consumption water closets. This will conserve water and help assure continued availability of adequate water supplies, as well as reduce wastewater flows. The final rule will also include requirements for low consumption

water closets (1.6 gallons per flush), and clarify that showerheads and faucets are also to meet updated requirements (maximum flow rate of 2.5 gallons per minute) for water conservation as required by the Energy Policy Act of 1992.

G. Subpart H—Heating, Cooling and Fuel Burning Systems

The final rule amends § 3280.709 by adding a paragraph (h) to require the installation of a corrosion-resistant water drip collection and drain pan under each water heater.

The final rule amends § 3280.715(c) to require joints and seams of sheet metal and flexible metal ducts, including risers, trunks, crossovers, branches, and plenums to be mechanically secured and made substantially airtight. The final rule also requires that the tapes and sealants used to seal the duct systems be applied to dry clean surfaces having no dirt, grease, or oil on them. Currently, the standards specify only that the joints and seams of ducts be securely fastened and made substantially airtight. In addition, sealants and tapes will also be required to be listed in accordance with UL 181A for rigid ducts and UL 181B for flexible ducts.

H. Subpart I—Electrical Systems

The final rule amends § 3280.806(d)(9) by clarifying that a receptacle outlet would be provided on a wall adjacent to and within 36 inches of the outside edge of each bathroom basin. This wall receptacle outlet would be in addition to any outlet that is part of a lighting fixture or appliance that is over a bathroom basin. This revision will no longer permit a receptacle that is integral with the light fixture over a bathroom basin to serve as the only outlet for a bathroom basin location. This change also addresses safety concerns related to the permissible length of power cords for small appliances that may arise in areas in which flowing water and electrical outlets are in close proximity, such as light fixtures at bathroom basin locations.

The final rule also amends § 3280.808(o) to provide a tolerance for the gap at the edge of a box in walls or ceilings of noncombustible material consistent with the National Electrical Code.

I. Revisions to Standards Incorporated by Reference (Reference Standards)

The following is a list of the standards incorporated by reference that is being revised by this final rule. Each reference standard is preceded by an indicator to identify the type of change being made. A new reference standard being added is indicated by the designation ''N,'' a reference standard being updated is indicated by the designation ''U,'' and a reference standard being deleted is indicated by the designation ''DELETED.'' In some cases, it was necessary to use a different or more recent edition of a reference standard than indicated in the proposed rule, because either the date of the standard was incorrectly cited or the reference standard was out of date and no longer available from the publishing organization. These changes in dates are identified in the list below by italics. In other cases, a proposed reference standard was not available and, as a result, HUD is retaining the existing reference standard. These changes are identified in the list below by a single asterisk. Two new proposed reference standards, not presently contained in the Construction and Safety Standards, could not be located, and have been eliminated from the final rule. These reference standards are identified in the list below by a double asterisk. The sections of the Construction and Safety Standards being amended by each modification are also shown on the right of each reference standard being added, updated, or deleted.

U AA	1994	Aluminum Design Manual, Specifications and Guidelines for Aluminum Structures, Part 1–A, Sixth Edition, October 1994, and Part 1–B, First Edition, October 1994.	3280.304(b).
N AAMA/WDMA 101/I.S.2–97	1997	Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.	3280.304(b)(1); 3280.403(b)&(e); 3280.404(b).
N *AAMA 1600/I.S. 7–00*	*2003*	Voluntary Specification for Skylights	3280.305.
U AAMA 1701.2–95	1995	Voluntary Standard Primary Window and Sliding Glass Door for Utilization in Manufactured Housing.	3280.403(b); 3280.403(e); 3280.404(b).
U AAMA 1702.2–95	1995	Voluntary Standard Swinging Exterior Passage Door for Utilization in Manufactured Housing.	3280.405(b); 3280.405(e); 3280.405(e)(2).
U *ANSI/AFPA NDS–2001*	*2001*	National Design Specification for Wood Construction, 2001 Edition, with Supplement, Design Values for Wood Construction.	3280.304(b)(1).
* *AFPA*	*1992*	Design Values for Joists and Rafters	3280.304(b)(1).
U AISI	1996	Specification for the Design of Cold-Formed Steel Structural Members.	3280.304(b)(1); 3280.305(j)(1).
DELETED ANSI C73.17	1972	National Standard Dimensions of Caps, Plugs, and Receptacles, Ground Type.	3280.803(g).
U *ANSI Z21.1*	*2000*	Household Cooking Gas Appliances	3280.703.
U *ANSI Z21.5.1–1999; CSA 7.1–M99.*	*1999*	Gas Clothes Dryers Volume 1—Type 1 Clothes Dryers with Addendum Z21.5.1a–1999.	3280.703.
U *ANSI Z21.10.1–1998; CSA 4.1–M98.*	*1998*	Gas Water Heaters—Volume 1, Storage Water Heaters with Input Ratings of 75,000 BTU Per Hour or Less with Addendum Z21.10.1a–2000.	3280.703.

U ANSI Z21.15–1997; CGA 9.1–M97.	1997	Manually Operated Gas Valves for Appliances, Appliance Connector Valves, and Hose End Valves.	3280.703.
U *ANSI Z21.20*	*2000*	Automatic Gas Ignition Systems and Components with Addendum Z21.20a–2000.	3280.703.
U *ANSI Z21.21–2000; CSA 6.5–2000.*	*2000*	Automatic Valves for Gas Appliances	3280.703.
N *ANSI Z21.22–1999; CSA 4.4–M99.*	*1999*	Relief Values for Hot Water Supply Systems	3280.703.
*			
ANSI Z21.23	*1989*	Gas Appliance Thermostats with Addendum Z21.23a–1991	3280.703.
U ANSI Z21.24–1997; CGA 6.10–M97.	*1997*	Connectors for Gas Appliances	3280.703.
U ANSI Z21.40.1–1996; CGA 2.91–M96.	1996	Gas Fired, Heat Activated Air Conditioning and Heat Pump Appliances.	3280.703; 3280.714(a)(2).
*			
ANSI Z21.47	*1990*	Gas-Fired Central Furnaces (Except Direct Vent System Control Furnaces) with Addendum Z21.47a–1990 and Z21.47b–1992.	3280.703.
*			
ANSI Z21.64	*1990*	Direct Vent Central Furnaces with Addendum Z21.64a–1992 (Discontinued—Now part of Z21.47).	3280.703.
U ANSI Z34.1–1993	1993	Third Party Certification Programs for Products, Processes, and Services.	3280.403(e)(1); 3280.405(e)(1).
N ANSI Z124.5–1997	1997	Plastic Toilet (water closets) Seats	3280.604(b).
N ANSI Z124.7–1997	1997	Prefabricated Plastic Spa Shells	3280.604(b).
** *ANSI Z124.8*	*1990*	Bathtub Liners	3280.604(b).
N ANSI Z124.9–1994	1994	Plastic Urinal Fixtures	3280.604(b).
U ANSI/AHA A135.4–1995	1995	Basic Hardboard	3280.304(b)(1).
U ANSI/AHA A135.5–1995	1995	Prefinished Hardboard Paneling	3280.304(b)(1).
U ANSI/AHA A135.6–1998	1998	Hardboard Siding	3280.304(b)(1).
U ANSI A208.1–1999	1999	Particleboard	3280.304(b)(1).
N ASME A112.4.1–1993	1993	Water Heater Relief Valve Drain Tubes	3280.604(b).
N ASME A112.4.3–1999	1999	Plastic Fittings for Connecting Water Closets to the Sanitary Drainage System.	3280.604(b).
*			
ANSI/ASME A112.18.1M	1989	Plumbing Fixture Fittings	3280.604(b).
N ASME A112.18.3M–1996	1996	Performance Requirements for Backflow Protection Devices and Systems in Plumbing Fixture Fittings.	3280.604(b).
N ASME A112.18.6–1999	1999	Flexible Water Connectors	3280.604(b).
N ASME A112.18.7–1999	1999	Deck Mounted Bath/Shower Transfer Valves with Integral Backflow Protection.	3280.604(a).
N ASME A112.19.6	1995	Hydraulic Performance Requirements for Water Closets and Urinals.	3280.604(b).
N ASME A112.19.9M–1991	1991	Non-Vitreous Ceramic Plumbing Fixtures	3280.604(b).
N ASME A112.19.10–1994	1994	Dual Flush Devices for Water Closets	3280.604(b).
N ANSI/NEMA WD 6–1997	1997	Wiring Devices—Dimensional Specifications (Replaces C73.17 of the same title.).	3280.803.
N *ANSI/NSF 61–2001*	*2001*	Drinking Water System Components—Health Effects	3280.604(b)(2).
DELETED NWWDA IS 1–87		Wood Flush Doors	3280.304(b)(1); 3280.405(c)(1).
DELETED			

ANSI/NWWDA I.S.2–87	1987	Wood Windows (This standard is replaced by AAMA/WDMA 101/I.S.2–97 NWWDA [National Wood Window and Door Association] is now the WDMA [Window and Door Manufacturers Association]).	3280.304(b)(1).
DELETED			
ANSI/NWWDA I.S.3–88	1988	Wood Sliding Patio Doors (This standard is replaced by AAMA/WDMA 101/I.S.2–97).	3280.304(b)(1).
DELETED			
NWWDA IS 4–88		Water Repellent Preservative Non Pressure Treatment for Millwork.	3280.304(b)(1).
DELETED			
APA PRP E108, E445N	1989	Performance Standards and Policies	3280.304(b)(1).
U			
APA E30P	1996	Design/Construction Guide Residential and Commercial Structures.	3280.304(b)(1).
U			
PS 1–95	1995	Construction and Industrial Plywood (with Typical APA Trademarks).	3280.304(b)(1).
*			
PS 2–92 (also known as NIST Standard PS 2–96).	1992	Voluntary Product Standard Performance Standard for Wood-Based Structural Use Panels.	3280.304(b)(1).
*			
APA S 811M	1990	Design and Fabrication of Plywood Curved Panels, PDS Suppl. 1.	3280.304(b)(1).
*			
APA S 812Q	1992	Design and Fabrication of Glued Plywood Lumber Beams PDS Suppl. 2.	3280.304(b)(1).
*			
APA U 813L	1990	Design and Fabrication of Plywood Stressed Skin Panels PDS Suppl. 3.	3280.304(b)(1).
U			
APA H815E	1995	Design and Fabrication of All Plywood Beams (PDS Suppl. 5.)	3280.304(b)(1).
N			
APA D410A	2004	Panel Design Specification	3280.304(b)(1).
*			
APA U814 H	1990	Design and Fabrication of Plywood Sandwich Panels, Suppl. 4	3280.304(b)(1).
N			
SEI/ASCE–8–02	*2002*	Specification for the Design of Cold-Formed Stainless Steel Structural Members.	3280.304(b)(1); 3280.305(j).
N			
ASCE–19–96	1996	Structural Applications of Steel Cables for Buildings	3280.304(b)(1).
U			
ASHRAE	1997	1997 ASHRAE Handbook, Fundamentals, Inch-Pound Edition	3280.508.
N			
ASSE #1051 Revised: 1996; ANSI: 1998.	1990	Performance Requirements for Air Admittance Valves for Plumbing Drainage Systems—Fixture and Branch Devices.	3280.604(b).
U			
ASTM A 539–99	1999	Standard Specification for Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines.	3280.703; 3280.705(b)(4).
U			
ASTM B 280–95	1995	Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.	3280.703; 3280.705(b)(3); 3280.706(b)(3).
U			
ASTM C 36/C36M–99	*1999*	Standard Specification for Gypsum Wallboard	3280.304(b)(1).
U			
ASTMD 4442–92 (Reapproved 1997).	*1997*	Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.	3280.304(b)(1).
U			
ASTM E 84–01	2001	Standard Test Method for Surface Burning Characteristics of Building Materials.	3280.203(a).
U			
ASTM E 96–95	1995	Standard Test Methods for Water Vapor Transmission of Materials.	3280.504(a).
U			
ASTM E 162–94	1994	Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source.	3280.203(a).
U			
ASTM E 773–97	1997	Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units.	3280.403(d)(2).
U			
ASTM E 774–97	1997	Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units.	3280.403(d)(2).
U			
ASTM E 1333–96	1996	Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber.	3280.406(b).

U HPVA Design Guide HP–SG–96	1996	Structural Design Guide for Hardwood Plywood Wall Panels	3280.304(b)(1).
U ANSI/HPVA HP–1–1994 (Approved 1995).	1994	American National Standard for Hardwood and Decorative Plywood.	3280.304(b)(1).
DELETED HUD–FHA UM–25d–73	1973	Application and Fastening Schedule: Power-Driven, Driven Fasteners, Use of Materials Bulletin UM–25d.	3280.304(b)(1).
U IAPMO TSC 9–97	1997	Standard for Gas Supply Connectors for Manufactured Homes	3280.703.
* * *ANSI/IAS LC 1*	*1997*	Gas Piping Using Corrugated Stainless Steel Tubing with Addendum LC–1A–1999.	3280.703.
* *IITRI Fire and Safety Research Project J6461.*	*1979*	Development of Mobile Home Fire Test Methods to Judge the Fire-Safe Performance of Foam Plastic Sheathing and Cavity Insulation (Note: this is an editorial revision to correct the title and insert the date of publication only.).	3280.207(a).
N NER–272	1997	National Evaluation Report, Power Driven Staples and Nails for Use in All Types of Buildings Construction. (This is published by the National Evaluation Service.).	3280.304(b).
U NFPA 31	1997	Standard for the Installation of Oil-Burning Equipment	3280.703; 3280.707(f).
U *NFPA 54–2002/ANSI Z223.1–2002.*	*2002*	National Fuel Gas Code	3280.703.
U *NFPA 58*	*2001*	Liquefied Petroleum Gas Code	3280.703; 3280.704(b)(5)(i).
U *NFPA 70*	*2005*	National Electrical Code	3280.801(a); 3280.801(b); 3280.803(k)(1); (k)(3); 3280.804(a); 3280.805(a)(3); 3280.806(a)(2); 3280.807(c); 3280.808(a)(m)&(q); 3280.811(b).
U NFPA 220	1995	Standard on Types of Building Construction, Chapter 2, Definitions of ''limited combustible'' and ''noncombustible material''.	3280.202.
N NFPA 255	1996	Standard Method of Test of Surface Burning Characteristics of Building Materials.	3280.203(a).
N NFRC 100	1997	Procedure for Determining Fenestration Product U-factors	3280.508(e).
U SJI	1994	Fortieth Edition Standard Specifications Load Tables and Weight Tables for Steel Joist and Joist Girders.	3280.304(b)(1).
U *UL 94*	*1996*	Test for Flammability of Plastic Materials for Parts in Devices and Appliances, Fifth Edition, with 2001 revisions.	3280.715(e)(1).
U *UL 103*	*1995*	Factory-Built Chimneys for Residential Type and Building Heating Appliances, Ninth Edition, with 1999 revisions.	3280.703.
U *UL 109*	*1997*	Tube Fittings for Flammable and Combustible Fluids, Refrigeration Service, and Marine Use, Sixth Edition, with 2001 revisions.	3280.703.
U *UL 127*	1996	Factory-Built Fireplaces, Seventh Edition, with 1999 revisions ...	3280.703.
U *UL 174*	*1996*	Household Electric Storage Tank Water Heaters, Tenth Edition, with 1997 revisions.	3280.703.
U *UL 181*	*1996*	Factory-Made Air Ducts and Air Connectors, Ninth Edition, with 1998 revisions.	3280.703; 3280.715(e).
N *UL 181A*	*1994*	Closure Systems for Use with Rigid Air Ducts and Air Connectors, Second Edition, with 1998 revisions.	3280.703; 3280.715(c).
N *UL 181B*	*1995*	Closure Systems for Use with Flexible Air Ducts and Air Connectors, First Edition, with 1998 revisions.	3280.703; 3280.715(c).
U *UL 307A*	*1995*	Liquid Fuel-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles, Seventh Edition, with 1997 revisions.	3280.703; 3280.707(f).

U			
UL 307B	*1995*	Gas-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles, Fourth Edition, with 1998 revisions.	3280.703.
U			
UL 311	*1994*	Roof Jacks for Manufactured Homes and Recreational Vehicles, Eighth Edition, with 1998 revisions.	3280.703.
U			
UL 441	*1996*	Gas Vents, Ninth Edition, with 1999 revisions	3280.703.
DELETED			
UL 465	1987	Central Cooling Air Conditioners (This standard is discontinued and replaced by UL 1995.).	3280.703.
U			
UL 569	*1995*	Pigtails and Flexible Hose Connectors for LP-Gas, Seventh Edition, with 2001 revisions.	3280.703; 3280.705.
U			
UL 737	*1996*	Fireplace Stoves, Eighth Edition, with 2000 revisions	3280.703.
DELETED			
UL 1025	1991	Electric Air Heaters (This standard is discontinued and replaced by UL 2021.).	3280.703.
U			
UL 1042	*1994*	Electric Baseboard Heating Equipment, Fourth Edition, with 1998 revisions.	3280.703.
U			
UL 1482	*1996*	Solid-Fuel Type Room Heaters, Fifth Edition, with 2000 revisions.	3280.703.
N			
UL 1995	*1995*	Heating and Cooling Equipment, Second Edition, with 1999 revisions (Replaces UL 465, UL 559 and UL 1096).	3280.703.
N			
UL 2021	*1997*	Fixed and Location-Dedicated Electric Room Heaters, Second Edition, with 1998 revisions (Replaces UL 1025).	3280.703.

IV. Findings and Certifications

Regulatory Planning and Review

The Office of Management and Budget (OMB) reviewed this rule under Executive Order 12866 (entitled ''Regulatory Planning and Review''). OMB determined that this rule is a ''significant regulatory action'' as defined in section 3(f) of the Order (although not an economically significant regulatory action, as provided under section 3(f)(1) of the Order). Any changes made to the rule subsequent to its submission to OMB are identified in the docket file, which is available for public inspection in the Regulations Division, Office of General Counsel, Department of Housing and Urban Development, 451 Seventh Street, SW., Room 10276, Washington, DC 20410–0500.

Paperwork Reduction Act

The information collection requirements contained in this rule are currently approved by OMB under section 3504(h) of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501–3520) and assigned OMB Control Number 2502–0253. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless the collection displays a currently valid control number.

Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531–1538) establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. This rule will not impose any Federal mandates on any State, local, or tribal government or the private sector within the meaning of the Unfunded Mandates Reform Act of 1995.

Environmental Review

A Finding of No Significant Impact with respect to the environment has been made in accordance with HUD regulations at 24 CFR part 50, which implement section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)). Although the Finding of No Significant Regulatory Impact for the proposed rule remains applicable to the final rule, a Supplemental Finding of No Significant Regulatory Impact has been added to discuss changes made in the final rule. Both the Finding of No Significant Impact and the Supplemental Finding are available for public inspection between the hours of 8 a.m. and 5 p.m. weekdays in the Regulations Division, Office of General Counsel, Department of Housing and Urban Development, 451 Seventh Street, SW., Room 10276, Washington, DC 20410–0500.

Impact on Small Entities

The Secretary, in accordance with the Regulatory Flexibility Act (5 U.S.C. 605(b)), has reviewed and approved this final rule and in so doing certifies that the rule would not have a significant economic impact on a substantial number of small entities. The rule would regulate establishments primarily engaged in making manufactured homes (NAICS 32991). The Small Business Administration's size standards define an establishment primarily engaged in making manufactured homes as small if it does not exceed 500 employees. Of the 222 firms included under this NAICS definition, 198 are small manufacturers that fall below the small business threshold of 500 employees. The final rule will apply to all of the manufacturers. The rule would, thus, affect a substantial number of small entities. However, based on an analysis of the costs and the fact that a small manufacturer would just as likely produce homes at the higher end of the cost spectrum as would a major producer, evaluating the effect of the increase is not discernible based on the size of the manufacturing operation. For the reasons stated below, HUD knows of no instance in which a manufacturer with fewer than 500 employees would be significantly affected by this rule.

HUD, in cooperation with MHCC, previously conducted an economic cost impact analysis for this rule. A copy of the economic analysis is available for

public inspection and copying between 8 a.m. and 5 p.m. weekdays at the Regulations Division, Office of General Counsel, Department of Housing and Urban Development, 451 Seventh Street, SW., Room 10276, Washington, DC 20410–0500. The economic analysis previously concluded the potential cost impact, based on a per home cost, to be approximately $77.28 to retailers and $96.60 to purchasers or an estimated annual cost impact of $13,137,600 to retailers and $16,422,000 to purchasers. This is based on an estimated annual production rate of 170,000 manufactured homes per year. HUD now estimates that the annual projected cost impacts indicated in the proposed rule have been reduced by more than 40 percent in the final rule, as a result of the removal of the revisions to the truss testing procedures from the final rule. Further, the final cost estimates would be even lower today based on present annual production rates, which range between 130,000 and 140,000 homes per year. In addition, the cost of the paperwork burden associated with this rule is estimated to be approximately $112,000 for the entire industry, which is less than an additional $1.00 per unit. Additional information about the paperwork burden can be found in the Paperwork Reduction Act section of the preamble. This does not represent a significant economic effect on either an industry-wide or on a per-unit basis.

These relatively small increases in cost associated with this final rule would not impose a significant burden for a small business for homes that can cost the purchaser between $40,000 and $100,000. Therefore, although this rule would affect a substantial number of small entities, it would not have a significant economic impact on them.

Executive Order 13132, Federalism

Executive Order 13132 (entitled ''Federalism'') prohibits, to the extent practicable and permitted by law, an agency from promulgating a regulation that has federalism implications and either imposes substantial direct compliance costs on State and local governments and is not required by statute, or preempts State law, unless the relevant requirements of section 6 of the Executive Order are met. This rule does not have federalism implications and does not impose substantial direct compliance costs on State and local governments or preempt State law within the meaning of the Executive Order.

V. Incorporation by Reference

These reference standards are approved by the Director of the Federal Register for incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of these standards may be obtained from the following organizations:

AA—The Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, VA 22209, (703) 358–2960, *www.aluminum.org.*

AFPA—American Forest and Paper Association, 1111 19th Street, NW., Washington, DC 20036, (202) 463–2700, fax (202) 463–5180, *www.afandpa.org.*

AHA—American Hardboard Association, 1210 West Northwest Highway, Palatine, IL 60067, (847) 934–8800, fax (847) 934–8803, *www.hardboard.org.*

AISI—American Iron and Steel Institute, 1101 17th Street, NW., Washington, DC 20036, (202) 452–7100, fax (202) 463–6573, *www.aisc.org.*

ANSI—American National Standards Institute, 25 West 43rd Street, New York, NY 10036, (212) 642–4900, fax (212) 398–0023, *www.ansi.org.*

APA—The Engineered Wood Association, 7011 South 19th Street, Tacoma, WA 98411, (253) 565–6600, fax (253) 565–7265, *www.apawood.org.*

ASCE—American Society of Civil Engineers, 1015 15th Street, NW., Washington, DC 20005, (202) 789–2200, fax (202) 289–6797, *www.asce.org.*

ASHRAE—American Society for Heating, Refrigeration and Air Conditioning Engineers, 1791 Tuillie Circle, NE., Atlanta, GA 30329, (404) 636–8400, fax (404) 321–5478, *www.ashrae.org.*

ASME—American Society of Mechanical Engineers, 22 Law Drive, P.O. Box 2900, Fairfield, NJ 07007, 1–800 843–2763, fax 1–973–882–8113, *www.asme.org.*

ASSE—American Society of Sanitary Engineering, P.O. Box 40362, Bay Village, OH 44140, (216) 835–3040, fax (216) 835–3488, *www.asse-plumbing.org.*

ASTM—American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428, (610) 832–9500, fax (610) 832–9555, *www.astm.org.*

CSA (IAS)—CSA International (formerly International Approval Services), 8501 East Pleasant Valley Road, Cleveland, OH 44131, (216) 524–4990, fax (216) 642–3463, *www.csa-international.org.*

CPA—Composite Panel Association (formerly the National Particle-board Association) 18928 Premier Court, Gaithersburg, MD 20879–1574, (301) 670–0604, fax (301) 840–1252, *www.pbmdf.com.*

HPVA—Hardwood Plywood and Veneer Association, 1825 Michael Faraday Drive, Reston, VA 22090, (703) 435–2900, fax (703) 435–2537, *www.hpva.org.*

HUD—Department of Housing and Urban Development, Office of Manufactured Housing Programs, 451 Seventh Street, SW., Washington, DC 20410, (202) 708–6423, fax (202) 708–4213.

IAPMO—International Association of Plumbing and Mechanical Officials, 20001 Walnut Drive South, Walnut, CA 91789, (909) 595–8449, fax (909) 594–1537, *www.iapmo.org.*

IIT—IIT Research Institute, 10 West 35th Street, Chicago, IL 60616, (312) 567–3000, fax (312) 567–4167, *www.iitri.org.*

NEMA—National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209, (703) 841–3200, fax (703) 841–5900, *http://www.nema.org.*

NER—International Code Council Evaluation Service [Previously known as National Evaluation Service], 5360 Workman Mill Road, Whittier, CA 90601–0543.

NFPA—National Fire Protection Association, Batterymarch Park, Quincy, MA 02269, (617) 770–3000, fax (617) 770–0700, *www.nfpa.org.*

NFRC—National Fenestration Rating Council, Incorporated, 1300 Spring Street, Suite 120, Silver Spring, MD 20910, (301) 589–6372, fax (301) 588–0854, *www.nfrc.org.*

NSF—NSF International, P.O. Box 130140, Ann Arbor, MI 48113, (313) 769–8010, fax (313) 769–0109, *www.nsf.org.*

PS—National Institute of Standards and Technology, Voluntary Product Standards, Gaithersburg, MD 20810, (301) 975–2000, fax (301) 926–1559, *www.nist.gov.*

SJI—Steel Joist Institute, 1205 48th Avenue North, Suite A, Myrtle Beach, SC 29577, (803) 626–1995, fax (803) 449–1343, *www.steeljoist.org.*

TPI—Truss Plate Institute, 583 D'Onofrio Drive, Suite 200, Madison, WI 53719, (608) 833–5900, fax (608) 833–4360, *www.tpinst.org.*

UL—Underwriters Laboratories, 333 Pfingsten Road, Northbrook, IL 60062, (847) 272–8800, fax (847) 509–6257, *www.ul.com.*

WDMA (NWWDA)—Window and Door Manufacturers Association (formerly the National Wood Window and Door Association), 1400 East Touhy Avenue, Des Plaines, IL 60018, (847) 299–5200, fax (847) 299–1286, *www.wdma.com.*

Catalog of Federal Domestic Assistance

The Catalog of Federal Domestic Assistance number for Manufactured

Housing Construction and Safety Standards is 14.171.

List of Subjects in 24 CFR Part 3280

Housing standards, Incorporation by reference, Manufactured homes.

■ Accordingly, for the reasons stated in the preamble, HUD is amending 24 CFR part 3280 as follows:

PART 3280—MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS

■ 1. The authority citation for part 3280 continues to read as follows:

Authority: 42 U.S.C. 3535(d), 5403, and 5424.

■ 2. In § 3280.4(b), revise the address for *HUD User* and add the following organizations to the list in alphabetical order to read as follows:

§ 3280.4 Incorporation by reference.

* * * * *

(b) * * *

HUD User, 11491 Sunset Hills Road, Reston, VA 20190–5254

* * *

NEMA—National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209

NER—International Code Council Evaluation Service [Previously known as National Evaluation Service], 5360 Workman Mill Road, Whittier, CA 90601–0543

* * *

NFRC—National Fenestration Rating Council, 8984 Georgia Avenue, Suite 320, Silver Spring, MD 20910

* * *

WDMA—Window and Door Manufacturers Association [Previously known as the National Wood Window and Door Association, NWWDA], 1400 East Touhy Avenue, Des Plaines, IL 60018

* * * * *

■ 3. In § 3280.103, revise paragraph (b) to read as follows:

§ 3280.103 Light and ventilation.

* * * * *

(b) *Whole-house ventilation.* Each manufactured home must be provided with whole-house ventilation having a minimum capacity of 0.035 $ft^3/min/ft^2$ of interior floor space or its hourly average equivalent. This ventilation capacity must be in addition to any openable window area. In no case shall the installed ventilation capacity of the system be less than 50 cfm nor more than 90 cfm. The following criteria must be adhered to:

(1) The ventilation capacity must be provided by a mechanical system or a combination passive and mechanical system. The ventilation system or provisions for ventilation must not create a positive pressure in Uo Value Zone 2 and Zone 3 or a negative pressure condition in Uo Value Zone 1. Mechanical systems must be balanced. Combination passive and mechanical systems must have adequately sized inlets or exhaust to release any unbalanced pressure. Temporary pressure imbalances due to gusting or high winds are permitted.

(2) The ventilation system or provisions for ventilation must exchange air directly with the exterior of the home, except the ventilation system, or provisions for ventilation must not draw or expel air with the space underneath the home. The ventilation system or provisions for ventilation must not draw or expel air into the floor, wall, or ceiling/roof systems, even if those systems are vented. The ventilation system must be designed to ensure that outside air is distributed to all bedrooms and main living areas. The combined use of undercut doors or transom grills connecting those areas to the room where the mechanical system is located is deemed to meet this requirement.

(3) The ventilation system or a portion of the system is permitted to be integral with the home's heating or cooling system. The system must be capable of operating independently of the heating or cooling modes. A ventilation system that is integral with the heating or cooling system is to be listed as part of the heating and cooling system or listed as suitable for use with that system.

(4) A mechanical ventilation system, or mechanical portion thereof, must be provided with a manual control, and must be permitted to be provided with automatic timers or humidistats.

(5) A whole-house ventilation label must be attached to the whole-house ventilation control, must be permanent, and must state: ''WHOLE-HOUSE VENTILATION''.

(6) Instructions for correctly operating and maintaining whole-house ventilation systems must be included with the homeowner's manual. The instructions must encourage occupants to operate these systems whenever the home is occupied, and must refer to the labeled whole-house ventilation control.

* * * * *

■ 4. In § 3280.202, revise the definition of ''Limited combustible'' and the definition of ''Noncombustible material'' to read as follows:

§ 3280.202 Definitions.

* * * * *

Limited combustible: A material meeting:

(1) The definition contained in Chapter 2 of NFPA 220–1995, Standard on Types of Building Construction; or

(2) 5/16-inch or thicker gypsum board.

Noncombustible material: A material meeting the definition contained in Chapter 2 of NFPA 220–1995, Standard on Types of Building Construction.

* * * * *

■ 5. In § 3280.203, revise paragraph (a) introductory text to read as follows:

§ 3280.203 Flame spread limitations and fire protection requirements.

(a) *Establishment of flame spread rating.* The surface flame spread rating of interior-finish material must not exceed the value shown in § 3280.203(b) when tested by Standard Test Method for Surface Burning Characteristics of Building Materials, ASTM E84–01, 2001, or Standard Method of Test of Surface Burning Characteristics of Building Materials NFPA 255, 1996, 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 162–94. However, the following materials need not be tested to establish their flame spread rating unless a lower rating is required by the standards in this part:

* * * * *

■ 6. Revise § 3280.206 to read as follows:

§ 3280.206 Fireblocking.

(a) *General.* Fireblocking must comply with the requirements of this section. The integrity of all fireblocking materials must be maintained.

(b) *Fireblocking materials.* Fireblocking must consist of the following materials:

(1) Minimum one inch nominal lumber, 5/16 inch thick gypsum board, or equivalent fire resistive materials; or

(2) Other Listed or Approved Materials;

(c) *Fireblocking locations.* (1) Fireblocking must be installed in concealed spaces of stud walls, partitions, and furred spaces at the floor and ceiling levels. Concealed spaces must not communicate between floor levels. Concealed spaces must not communicate between a ceiling level and a concealed roof area, or an attic space.

(2) Fireblocking must be installed at the interconnection of a concealed vertical space and a concealed horizontal space that occurs:

(i) Between a concealed wall cavity and the ceiling joists above; and

(ii) At soffits, drop ceilings, cover ceilings, and similar locations.

(3) Fireblocking must be installed around the openings for pipes, vents,

and other penetrations in walls, floors, and ceilings of furnace and water heater spaces. Pipes, vents, and other penetrations that cannot be moved freely within their opening are considered to be fireblocked. Materials used to fireblock heat producing vent penetrations must be noncombustible or limited combustible types.

■ 7. In § 3280.207, revise paragraph (a)(4) introductory text to read as 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:

* * * * *

■ 8. In § 3280.303, paragraph (g) is revised to read as follows:

§ 3280.303 General requirements.

* * * * *

(g) *Alternative test procedures.* In the absence of recognized testing procedures either in the Standards in this part or in the applicable provisions of those standards incorporated in this part by reference, the manufacturer electing this option must develop or cause to be developed testing procedures to demonstrate the structural properties and significant characteristics of the material, assembly, subassembly component, or member, except for testing methods involving one-piece metal roofing as would be required in § 3280.305(c)(1)(iii). Such testing procedures become part of the manufacturer's approved design. Such tests must be witnessed by an independent licensed professional engineer or architect or by a recognized testing organization. Copies of the test results must be kept on file by the manufactured home manufacturer.

9. In § 3280.304, revise paragraph (b)(1) to read as follows:

§ 3280.304 Materials.

* * * * *

(b)(1) Standards for some of the generally used materials and methods of construction are listed in the following table:

Aluminum

Aluminum Design Manual, Specifications and Guidelines for Aluminum Structures, Part 1-A, Sixth Edition, October 1994, and Part 1-B, First Edition, October 1994.

Steel

Specification for Structural Steel Buildings—Allowable Stress Design and Plastic Design—AISC–S335, 1989. The following parts of this reference standard are not applicable: 1.3.3, 1.3.4, 1.3.5, 1.3.6, 1.4.6, 1.5.1.5, 1.5.5, 1.6, 1.7, 1.8, 1.9, 1.10.4 through 1.10.7, 1.10.9, 1.11, 1.13, 1.14.5, 1.17.7 through 1.17.9, 1.19.1, 1.19.3, 1.20, 1.21, 1.23.7, 1.24, 1.25.1 through 1.25.5, 1.26.4, 2.3, 2.4, 2.8 through 2.10.

Specification for the Design of Cold-Formed Steel Structural Members—AISI–1996.

Specification for the Design of Cold-Formed Stainless Steel Structural Members—SEI/ASCE 8–02, 2002.

Standard Specifications Load Tables and Weight Tables for Steel Joists and Joist Girders, SJI, Fortieth Edition, 1994.

Structural Applications of Steel Cables for Buildings—ASCE19, 1996.

Standard Specification for Strapping, Flat Steel and Seals—ASTM D3953, 1991.

Wood and Wood Products

Basic Hardboard—ANSI/AHA A135.4–1995.

Prefinished Hardboard Paneling—ANSI/AHA A135.5–1995.

Hardboard Siding—ANSI/AHA A135.6–1998.

American National Standard for Hardwood and Decorative Plywood—ANSI/HPVA HP–1–1994 (Approved 1995).

Structural Design Guide for Hardwood Plywood Wall Panels—HPVA Design Guide HP–SG–96, 1996.

For wood products—Structural Glued Laminated Timber—ANSI/AITC A190.1–1992.

Construction and Industrial Plywood (With Typical APA Trademarks)—PS 1–95.

APA Design/Construction Guide, Residential and Commercial—APA E30-P–1996.

Design Specifications for Metal Plate and Wood Connected Trusses—TPI–85.

Design and Fabrication of All-Plywood Beams—APA H–815E (PDS Supplement #5), 1995.

Panel Design Specification—APA D410A, 2004.

Design and Fabrication of Glued Plywood-Lumber Beams—APA–S 812Q, Suppl. 2–1992.

Design and Fabrication of Plywood Curved Panels—APA–S 811M, Suppl. 1, 1990.

Design and Fabrication of Plywood Sandwich Panels—APA–U 814H, Suppl. 4, 1990.

Voluntary Product Standard, Performance Standard for Wood-based Structural Use Panels—PS 2–92, 1992 (also known as NIST Standard PS 2–96).

Design and Fabrication of Plywood Stressed-Skin Panels—APA–U 813L, Suppl. 3, 1990.

National Design Specifications for Wood Construction, 2001 Edition, with Supplement, Design Values for Wood Construction, NDS–2001, ANSI/AFPA.

Wood Structural Design Data, 1989, Revised 1992, AFPA.

Span Tables for Joists and Rafters—PS–20–70, 1993, AFPA.

Design Values for Joists and Rafters 1992, AFPA.

Particleboard—ANSI A208.1–1999.

Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors—ANSI/AAMA/NWWDA 101/I.S.2–97.

Standard Test Methods for Puncture and Stiffness of Paperboard, and Corrugated and Solid Fiberboard—ASTM D781, 1973.

Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials—ASTM D 4442–92 (Re-approved 1997), 1997.

Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters—ASTM D4444, 1992.

Other

Standard Specification for Gypsum Wallboard—ASTM C 36/C 36M–99, 1999.

Fasteners

National Evaluation Report, Power Driven Staples, Nails, and Allied Fasteners for Use in All Types of Building Construction—NER–272, 1997.

Unclassified

Minimum Design Loads for Buildings and Other Structures—ASCE 7–1988.

Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Building—ANSI Z97.1–1984.

* * * * *

■ 10. In § 3280.305:

■ A. Add paragraph (c)(1)(iii);

■ B. Add paragraphs (c)(3)(i)(A) through (C) following the table in paragraph (c)(3)(i);

■ C. Add paragraph (c)(3)(iv);

■ D. Revise paragraph (e);

■ E. Redesignate paragraphs (g)(3) through (g)(5) as paragraphs (g)(4) through (g)(6);

■ F. Add new paragraph (g)(3);

■ G. Redesignate paragraph (i)(l) as follows:

Old paragraph	New paragraph
(i)(1)(i)	(j)(1)
(i)(1)(ii)	(j)(2)
(i)(1)(ii)(A)	(j)(2)(i)
(i)(1)(ii)(B)	(j)(2)(ii)
(i)(1)(ii)(C)	(j)(2)(iii)

■ H. Reserve vacated paragraph (i); and

■ I. Revise newly redesignated paragraph (j)(1) to read as follows:

§ 3280.305 Structural design requirements.

* * * * *

(c) * * *

(1) * * *

(iii) One-piece metal roofing capable of resisting the design wind pressures for ''Components and Cladding: (Exterior roof coverings)'' in the Table for Design Wind Pressures in this section is allowed to be used without structural sheathing, provided the metal roofing is tested using procedures that have been approved by HUD and that meet all requirements of §§ 3280.303(c) and (g) and 3280.401.

* * * * *

(3) * * *

(i) * * *

(A) *North Roof Load Zone.* The following counties in each of the following states are deemed to be within the North Roof Load Zone:

States	Counties			
South Dakota	Grant	Brookings	Hanson	Lincoln
	Codington	Miner	Minnehaha	Yankton
	Deuel	Lake	Hutchinson	Union
	Hamlin	Moody	Turner	Clay
	Kingsbury	McCook		
Minnesota	Koochiching	Stearns	Renville	Sibley
	Itasca	Swift	McLeod	Nicollet
	Hubbard	Kandiyohi	Carver	Blue Earth
	Cass	Meeker	Dakota	Martin
	Crow Wing	Wright	Goodhue	Watonwan
	Aitkin	Lac qui Parle	Wabasha	Brown
	St. Louis	Chippewa	Winona	Redwood
	Lake	Yellow Medicine	Fillmore	Lyon
	Cook	Mille Lacs	Mower	Lincoln
	Carlton	Kanabec	Olmsted	Pipestone
	Pine	Benton	Dodge	Murray
	Wadena	Isanti	Rice	Cottonwood
	Todd	Sherburne	Steele	Jackson
	Morrison	Anoka	Freeborn	Nobles
	Douglas	Chisapo	Faribault	Rock
	Grant	Washington	Waseca	St. Croix
	Stevens	Hennepin	Le Sueur	
	Pope	Ramsey	Scott	
Iowa	Hanock	Mitchell	Hamilton	Buena Vista
	Lyon	Howard	Webster	Cherokee
	Osceola	Chickasaw	Calhoun	Plymouth
	Dickinson	Butler	Sac	Sioux
	Emmet	Floyd	Ida	O'Brien
	Kossuth	Cerro Gordo	Humboldt	Clay
	Winnebago	Franklin	Pocahontas	Wright
	Worth	Hardin	Palo Alto	Crawford
Wisconsin	Douglas	Oconto	Pepin	Lincoln
	Bayfied	Menominee	Pierce	Oneida
	Ashland	Langlade	Dunn	Polk
	Iron	Marathon	Eau Claire	Burnett
	Vilas	Clark	Chippewa	Washburn
	Forest	Jackson	Rusk	Sawyer
	Florence	Trempealeau	Barron	Price
	Marinette	Buffalo	Taylor	Doon
Michigan	Houghton	Iron	Presque Isle	Wexford
	Baraga	Dickinson	Charlevoix	Benzie
	Marquette	Menominee	Montmorency	Grand Traverse
	Alger	Delta	Alpena	Kalkaska
	Luce	Schoolcraft	Alcona	Oscoda
	Chippewa	Mackinaw	Ogemaw	Otsego
	Keweenaw	Cheyboygan	Roscommon	Leelanau
	Ontonagon	Emmet	Missaukee	Antrim
	Gogebic			
New York	St. Lawrence	Herkimer	Onondage	Genesee
	Franklin	Lewis	Madison	Orleans
	Clinton	Oswego	Cayuga	Niagara
	Essex	Jefferson	Seneca	Erie
	Hamilton	Oneida	Wayne	Wyoming
	Warren	Fulton	Ontario	Monroe
	Saratoga	Montgomery	Yates	
	Washington	Schenectady	Livingston	
Massachusetts	Essex			
Maine	Franklin	Kennebec	Lincoln	Cumberland
	Oxford	Androscoggin	Sagadahoc	York
Montana	All Counties			
Idaho	All Counties			
Colorado	All Counties			

Maine—Aroostook, Piscataquis, Somerset, Penobscot, Waldo, Knox, Hancock, and Washington.

Alaska—All Counties

(B) *Middle Roof Load Zone.* The following counties in each of the following states are deemed to be within the Middle Roof Load Zone:

Wyoming	All Counties			
Utah	All Counties			
Vermont	Franklin	Orleans	Caledonia	Addison
	Grand Isle	Essex	Washington	Rutland
	Lamoille	Chittendon	Orange	Windsor
New Hampshire	Coos	Belknap	Sullivan	Hillsborough
	Grafton	Strafford	Rockingham	Cheshire
	Carroll	Merrimack		

(C) *South Roof Load Zone.* The states and counties that are not listed for the North Roof Load Zone in paragraph (c)(3)(i)(A) of this section, or the Middle Roof Load Zone in paragraph (c)(3)(i)(B) of this section, are deemed to be within the South Roof Load Zone.

* * * * *

(iv) Skylights must be capable of withstanding roof loads as specified in paragraphs (c)(3)(i) or (c)(3)(ii) of this section. Skylights must be listed and tested in accordance with AAMA 1600/I.S.7–00, 2003, Voluntary Specification for Skylights.

* * * * *

(e) *Fastening of structural systems.* (1) Roof framing must 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 in order to resist wind overturning, uplift, and sliding, and to provide continuous load paths for these forces to the foundation or anchorage system. The number and type of fasteners used must be capable of transferring all forces between elements being joined.

(2) For Wind Zone II and Wind Zone III, roof framing members must be securely fastened at the vertical bearing points to resist design overturning, uplift, and sliding forces. When engineered connectors are not installed, roof framing members must be secured at the vertical bearing points to wall framing members (studs), and wall framing members (studs) must be secured to floor framing members, with 0.016 inch base metal, minimum steel strapping or engineered connectors, or by a combination of 0.016 inch base metal, minimum steel strapping or engineered connectors, and structural-rated wall sheathing that overlaps the roof and floor system if substantiated by structural analysis or by suitable load tests. Steel strapping or engineered connectors are to be installed at a maximum spacing of 24 inches on center in Wind Zone II, and 16 inches on center in Wind Zone III. *Exception:* Where substantiated by structural analysis or suitable load tests, the 0.016 inch base metal minimum steel strapping or engineered connectors may be omitted at the roof to wall and/or wall to floor connections, when structural rated sheathing that overlaps the roof and wall and/or wall and floor is capable of resisting the applicable design wind loads.

* * * * *

(g) * * *

(3) Wood panel products used as floor or subfloor materials on the exterior of the home, such as in recessed entryways, must be rated for exterior exposure and protected from moisture by sealing or applying nonabsorbent overlay with water resistant adhesive.

* * * * *

(j) *Welded connections.* (1) All welds must be made in accordance with the applicable provisions of the Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design, AISC–S335, 1989; the Specification for the Design of Cold-Formed Steel Structural Members, AISI, 1996; and the Specification for the Design of Cold-Formed Stainless Steel Structural Members, SEI/ASCE 8–02, 2002.

* * * * *

■ 11. In § 3280.306, revise paragraph (b)(1) to read as follows:

§ 3280.306 Windstorm protection.

* * * * *

(b) *Contents of instructions.* (1) The manufacturer must provide printed instructions with each manufactured home that specify the location and required capacity of stabilizing devices on which the home's design is based. The manufacturer must identify by paint, label, decal stencil, or other means: the location of each column support pier location required along the marriage line(s) of multi-section manufactured homes; each pier location required along the perimeter of the home; each required shear wall pier support; and any other special pier support locations specified in the manufacturer's printed instructions. Such identifications must be visible after the home is installed. The manufacturer must provide drawings and specifications, certified by a registered professional engineer or architect, that indicate at least one acceptable system of anchoring, including the details or required straps or cables, their end connections, and all other devices needed to transfer the wind loads from the manufactured home to an anchoring or foundation system.

* * * * *

■ 12. In § 3280.401, revise paragraphs (a) and (b) to read as follows:

§ 3280.401 Structural load tests.

* * * * *

(a) *Proof load tests.* Every structural assembly tested must be capable of sustaining its dead load plus superimposed live loads equal to 1.75 times the required live loads for a period of 12 hours without failure. Tests must be conducted with loads applied and deflections recorded in ¼ design live load increments at 10-minute intervals until 1.25 times design live load plus dead load has been reached. Additional load shall then be applied continuously until 1.75 times design live load plus dead load has been reached. Assembly failure shall be considered as design live load deflection (or residual deflection measured 12 hours after live load removal) that is greater than the limits set in § 3280.305(d), rupture, fracture, or excessive yielding. Design live load deflection criteria do not apply when the structural assembly being evaluated does not include structural framing members. An assembly to be tested shall be of the minimum quality of materials and workmanship of the production. Each test assembly, component, or subassembly shall be identified as to type and quality or grade of material. All assemblies, components, or subassemblies qualifying under this test shall be subject to a continuing qualification testing program acceptable to HUD.

(b) *Ultimate load tests.* Ultimate load tests must be performed on a minimum of three assemblies or components to generally evaluate the structural design. Every structural assembly or component tested must be capable of sustaining its total dead load plus the design live load increased by a factor of safety of at least 2.5. A factor of safety greater than 2.5 shall be used when required by an applicable reference standard in § 3280.304(b)(1). Tests shall be conducted with loads applied and deflections recorded in 1/4 design live load increments at 10-minute intervals

until 1.25 times design live load plus dead load has been reached. Additional loading shall then be applied continuously until failure occurs, or the total of the factor of safety times the design live load plus the dead load is reached. Assembly failure shall be considered as design live load deflection greater than the limits set in § 3280.305(d), rupture, fracture, or excessive yielding. Design live load deflection criteria do not apply when the structural assembly being evaluated does not include structural framing members. Assemblies to be tested shall be representative of average quality or materials and workmanship of the production. Each test assembly, component, or subassembly shall be identified as to type and quality or grade of material. All assemblies, components, or subassemblies qualifying under this test shall be subject to a periodic qualification testing program acceptable to HUD.

■ 13. In § 3280.403, revise paragraph (b), paragraph (d)(2), and paragraph (e) to read as follows:

§ 3280.403 Standard for windows and sliding glass doors used in manufactured homes.

* * * * *

(b) *Standard.* All primary windows and sliding glass doors shall comply with AAMA 1701.2–95, Voluntary Standard Primary Window and Sliding Glass Door for Utilization in Manufactured Housing, except the exterior and interior pressure tests must be conducted at the design wind loads required for components and cladding specified in § 3280.305(c)(1).

* * * * *

(d) * * *

(2) Sealed insulating glass, where used, must meet all performance requirements for Class C in accordance with ASTM E 774–97, Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units. The sealing system must be qualified in accordance with ASTM E 773–97, Standard Test Methods for Accelerated Weathering of Sealed Insulating Glass Units. Each glass unit must be permanently identified with the name of the insulating glass manufacturer.

(e) *Certification.* All primary windows and sliding glass doors to be installed in manufactured homes must be certified as complying with AAMA 1701.2–95. This certification must be based on tests conducted at the design wind loads specified in § 3280.305(c)(1).

(1) All such windows and doors must show evidence of certification by affixing a quality certification label to the product in accordance with ANSI Z34.1–1993, Third-Party Certification Programs for Products, Processes, and Services.

(2) In determining certifiability of the products, an independent quality assurance agency shall conduct pre-production specimen tests in accordance with AAMA 1701.2–95. Further, such agency must inspect the product manufacturer's facility at least twice per year.

* * * * *

■ 14. In § 3280.404, revise paragraph (b) to read as follows:

§ 3280.404 Standard for egress windows and devices for use in manufactured homes.

* * * * *

(b) *Performance.* Egress windows including auxiliary frame and seals, if any, shall meet all requirements of AAMA 1701.2–95, Voluntary Standard Primary Window and Sliding Glass Door for Utilization in Manufactured Housing and AAMA Standard 1704–1985, Voluntary Standard Egress Window Systems for Utilization in Manufactured Housing, except the exterior and interior pressure tests for components and cladding must be conducted at the design wind loads required by § 3280.305(c)(1).

* * * * *

■ 15. In § 3280.405, revise paragraphs (b), (c) and (e) to read as follows:

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

* * * * *

(b) *Performance requirements.* The design and construction of exterior door units must meet all requirements of AAMA 1702.2–95, Voluntary Standard Swinging Exterior Passage Door 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. Plywood shall be exterior type and preservative treated in accordance with NWWDA I.S.4–81, Water Repellent Preservative Non-Pressure Treatment for Millwork.

* * * * *

(e) *Certification.* All swinging exterior doors to be installed in manufactured homes must be certified as complying with AAMA 1702.2–95, Voluntary Standard Swinging Exterior Passage Door for Utilization in Manufactured Housing.

(1) All such doors must show evidence of certification by affixing a quality certification label to the product in accordance with ANSI Z34.1–1993, Third Party Certification Programs for Products, Processes, and Services.

(2) In determining certifiability of the products, an independent quality assurance agency must conduct a pre-production specimen test in accordance with AAMA 1702.2–95, Voluntary Standard Swinging Exterior Passage Door for Utilization in Manufactured Housing.

* * * * *

■ 16. In § 3280.406, revise the introductory text in paragraph (b) to read as follows:

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

* * * * *

(b) *Testing.* Testing must 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 1333–96, with the following exceptions:

* * * * *

■ 17. In § 3280.504, revise paragraph (a)(1) and paragraph (b) to read as follows:

§ 3280.504 Condensation control and installation of vapor retarders.

(a) *Ceiling vapor retarders.* (1) In U_o Value Zones 2 and 3, ceilings must have a vapor retarder with a permeance of not greater than 1 perm (as measured by ASTM E 96–95 Standard Test Methods for Water Vapor Transmission of Materials) installed on the living space side of the roof cavity.

* * * * *

(b) *Exterior walls.* (1) Exterior walls must have a vapor retarder with a permeance no greater than 1 perm (dry cup method) installed on the living space side of the wall; or

(2) Unventilated wall cavities must have an external covering and/or sheathing that forms the pressure envelope. The covering and/or sheathing must have a combined permeance of not less than 5.0 perms. In the absence of test data, combined permeance is permitted to be computed using the following formula: P total = $(1/[(1/P_1) + (1/P_2)])$, where P_1 and P_2 are the permeance values of the exterior covering and sheathing in perms. Formed exterior siding applied in sections with joints not caulked or sealed, are not considered to restrict water vapor transmission; or

(3) Wall cavities must be constructed so that ventilation is provided to dissipate any condensation occurring in these cavities; or

(4) Homes manufactured to be sited in ''humid climates'' or ''fringe climates'' as shown on the Humid and Fringe Climate Map in this paragraph are permitted to have a vapor retarder specified in paragraph (b)(1) of this section installed on the exterior side of the wall insulation or be constructed with an external covering and sheathing with a combined permeance of not greater than 1.0 perms, provided the interior finish and interior wall panel materials have a combined permeance of not less than 5.0 perms. The following need not meet the minimum combined permeance rating of not less than 5.0 perms for interior finish or wall panel materials:

(i) Kitchen back splash materials, less than 50 square feet in area installed around countertops, sinks, and ranges;

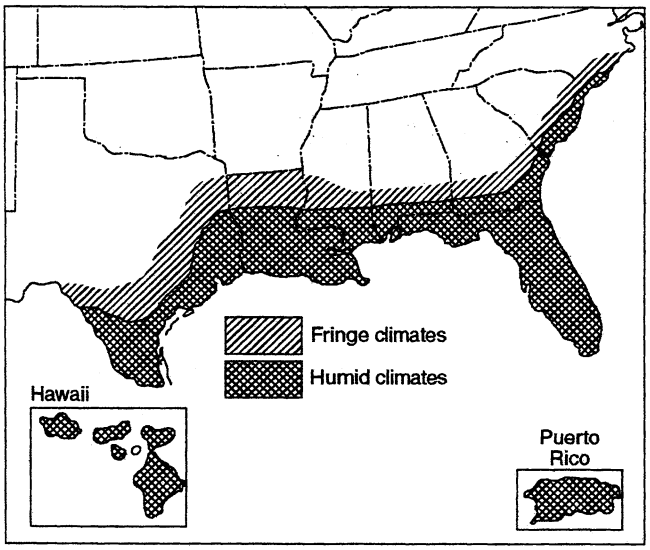
(ii) Bathroom tub areas, shower compartments;

(iii) Cabinetry and built-in furniture;

(iv) Trim materials;

(v) Hardboard wall paneling of less than 50 square feet in area under chair rails.

Humid and Fringe Climate Map



(5) The following areas of local governments (counties or similar areas, unless otherwise specified), listed by state are deemed to be within the humid and fringe climate areas shown on the Humid and Fringe Climate Map in paragraph (b)(4) of this section, and the vapor retarder or construction methods specified in paragraph (b)(4) of this section may be applied to homes built to be sited within these jurisdictions:

Alabama

Baldwin, Barbour, Bullock, Butler, Choctaw, Clarke, Coffee, Conecuh, Covington, Crenshaw, Dale, Escambia, Geneva, Henry, Houston, Lowndes, Marengo, Mobile, Monroe, Montgomery, Pike, Washington, Wilcox.

Florida

All counties and locations within the State of Florida.

Georgia

Appling, Atkinson, Bacon, Baker, Ben Hill, Berrien, Brantley, Brooks, Bryan, Calhoun, Camden, Charlton, Chatham, Clay, Clinch, Coffee, Colquitt, Cook, Crisp, Decatur, Dougherty, Early, Echols, Effingham, Evans, Glynn, Wayne, Grady, Irwin, Jeff Davis, Lanier, Lee, Liberty, Long, Lowndes, McIntosh, Miller, Mitchell, Pierce, Quitman, Randolph, Seminole, Tattnall, Terrell, Thomas, Tift, Turner, Ware, Worth.

Hawaii

All counties and locations within the State of Hawaii.

Louisiana

All counties and locations within the State of Louisiana.

Mississippi

Adams, Amite, Claiborne, Clarke, Copiah, Covington, Forrest, Franklin, George, Greene, Hancock, Harrison, Hinds, Issaquena, Jackson, Jasper, Jefferson, Jefferson Davis, Jones, Lamar, Lawrence, Lincoln, Pearl River, Perry, Pike, Rankin, Simpson, Smith, Stone, Walthall, Warren, Wayne, Wilkinson.

North Carolina

Brunswick, Carteret, Columbus, New Hanover, Onslow, Pender.

South Carolina

Jasper, Beaufort, Colleton, Dorchester, Charleston, Berkeley, Georgetown, Horry.

Texas

Anderson, Angelina, Aransas, Atascosa, Austin, Bastrop, Bee, Bexar, Brazoria, Brazos, Brooks, Burleson, Caldwell, Calhoun, Cameron, Camp, Cass, Chambers, Cherokee, Colorado, Comal, De Witt, Dimmit, Duval, Falls, Fayette, Fort Bend, Franklin, Freestone, Frio, Galveston, Goliad, Gonzales, Gregg, Grimes, Guadalupe, Hardin, Harris, Harrison, Hays, Henderson, Hidalgo, Hopkins, Houston, Jackson, Jasper, Jefferson, Jim Hogg, Jim Wells, Karnes, Kaufman, Kennedy, Kinney, Kleberg, La Salle, Lavaca, Lee, Leon, Liberty, Limestone, Live Oak, Madison, Marion, Matagorda, Maverick, McMullen, Medina, Milam, Montgomery, Morris, Nacogdoches, Navarro, Newton, Nueces, Orange, Panola, Polk, Rains, Refugio, Robertson, Rusk, Sabine, San Augustine, San Jacinto, San Patricio, Shelby, Smith, Starr, Titus, Travis, Trinity, Tyler, Upshur, Uvalde, Val Verde, Van Zandt, Victoria, Walker, Waller, Washington, Webb, Wharton, Willacy, Williamson, Wilson, Wood, Zapata, Zavala.

* * * * *

■ 18. In § 3280.508, revise paragraphs (a), (b), and (e) to read as follows:

§ 3280.508 Heat loss, heat gain, and cooling load calculations.

(a) Information, values and data necessary for heat loss and heat gain determinations must be taken from the 1997 ASHRAE Handbook of Fundamentals, Inch-Pound Edition, chapters 22 through 27. The following portions of those chapters are not applicable:

23.1 Steel Frame Construction
23.2 Masonry Construction
23.3 Foundations and Floor Systems
23.15 Pipes
23.17 Tanks, Vessels, and Equipment
23.18 Refrigerated Rooms and Buildings
24.18 Mechanical and Industrial Systems
25.19 Commercial Building Envelope Leakage
27.9 Calculation of Heat Loss from Crawl Spaces

(b) The calculation of the manufactured home's transmission heat loss coefficient (Uo) must be in accordance with the fundamental principles of the 1997 ASHRAE Handbook of Fundamentals, Inch-Pound Edition, and, at a minimum, must address all the heat loss or heat gain considerations in a manner consistent with the calculation procedures provided in the document, Overall U-values and Heating/Cooling Loads—Manufactured Homes—February 1992–PNL 8006, HUD User No. 0005945.

* * * * *

(e) U values for any glazing (e.g., windows, skylights, and the glazed portions of any door) must be based on tests using AAMA 1503.1–1988, Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections, or the National Fenestration Rating Council 100, 1997 Edition, Procedure for Determining Fenestration Product U-factors. In the absence of tests, manufacturers are to use the residential window U values contained in Chapter 29, Table 5 of the 1997 ASHRAE Handbook of Fundamentals, Inch-Pound Edition. In the event that the classification of the window type is indeterminate, the manufacturer must use the classification that gives the higher U value. Where a composite of materials from two different product types is used, the product is to be assigned the higher U value. For the purpose of calculating U_o values, storm windows are treated as an additional pane.

* * * * *

■ 19. In § 3280.510, add paragraph (d) to read as follows:

§ 3280.510 Heat loss certificate.

* * * * *

(d) The following additional statement must be provided on the heating certificate and data plate required by § 3280.5 when the home is built with a vapor retarder of not greater than one perm (dry cup method) on the exterior side of the insulation: ''This home is designed and constructed to be sited only in humid or fringe climate regions as shown on the Humid and Fringe Climate Map.'' A reproduction of the Humid and Fringe Climate Map in § 3280.504 is to be provided on the heating certificate and data plate. The map must be not less than 3½ inch x 2¼ inch in size and may be combined with the U_o Value Zone Map for Manufactured Housing in § 3280.506.

■ 20. In § 3280.604, revise paragraph (b)(2) and the table following paragraph (b)(2) to read as follows:

§ 3280.604 Materials.

* * * * *

(b) * * *

(2) When a plastic material or component is not covered by the Standards in the following table, it must be certified as non-toxic in accordance with ANSI/NSF 61–2001, Drinking water system components—Health effects.

Ferrous Pipe and Fittings

Gray Iron Threaded Fittings—ANSI/ASME B16.4–1992.

Malleable Iron Threaded Fittings—ANSI/ASME B16.3–1992.

Material and Property Standard for Special Cast Iron Fittings—IAPMO PS 5–84.

Welding and Seamless Wrought Steel Pipe—ANSI/ASME B36.10–1979.

Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless—ASTM A53–93.

Pipe Threads, General Purpose (Inch)—ANSI/ASME B1.20.1–1983.

Standard Specification for Cast Iron Soil Pipe and Fittings—ASTM A74–92.

Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications—CISPI–301–90.

Nonferrous Pipe and Fittings

Standard Specification for Seamless Copper Pipe, Standard Sizes—ASTM B42–93.

Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube—ASTM B251–93.

Standard Specification for Seamless Copper Water Tube—ASTM B88–93.

Standard Specification for Copper Drainage Tube (DWV)—ASTM B306–92.

Wrought Copper and Copper Alloy Solder-Joint Pressure Fitting—ASME/ANSI B16.22–1989.

Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings-DWV—ASME/ANSI B16.29–1986.

Cast Copper Alloy Solder-Joint Pressure Fittings—ANSI B16.18–1984.

Cast Copper Alloy Solder-Joint Drainage Fittings-DWV—ASME B16.23–1992.

Cast Copper Alloy Fittings for Flared Copper Tubes—ASME/ANSI B16.26–1988.

Standard Specification for Seamless Red Brass Pipe, Standard Sizes—ASTM B43–91.

Cast Bronze Threaded Fittings, Classes 125 and 250—ANSI/ASME B16.15–1985.

Plastic Pipe and Fittings

Standard Specification Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings—ASTM D2661–91.

Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings—ASTM D2665–91b.

Standard Specification for Drain, Waste, and Vent (DWV) Plastic Fittings Patterns—ASTM D3311–92.

Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40, Plastic Drain, Waste, and Vent Pipe With a Cellular Core—ASTM F628–91.

Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems—ASTM D2846–92.

Standard Specification for Polybutylene (PB) Plastic Hot- and Cold-Water Distribution Systems—ASTM D3309–92a.

Plastic Piping Components and Related Materials—ANSI/NSF 14–1990.

Miscellaneous

Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings—ASTM C564–88.

Backflow Valves—ANSI A112.14.1–1975.

Plumbing Fixture Setting Compound—TTP 1536A–1975.

Material and Property Standard for Cast Brass and Tubing P-Traps—IAPMO PS 2–89.

Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems—ANSI Z21.22–1986, With Addendum Z21.22a-1990.

Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings—ASTM D2235–88.

Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems—ASTM D2564–91a.

Specification for Neoprene Rubber Gaskets for HUB and Spigot Cast Iron Soil Pipe and Fittings—CISPI–HSN–85.

Plumbing System Components for Manufactured Homes and Recreational Vehicles—ANSI/NSF 24–1988.

Material and Property Standard for Diversion Tees and Twin Waste Elbow—IAPMO PS 9–84.

Material and Property Standard for Flexible Metallic Water Connectors—IAPMO PS 14–89.

Material and Property Standard for Dishwasher Drain Airgaps—IAPMO PS 23–89.

Material and Property Standards for Backflow Prevention Assemblies—IAPMO PS 31–91.

Performance Requirements for Air Admittance Valves for Plumbing Drainage Systems, Fixture and Branch Devices—ASSE

Standard #1051, 1990 Revised: 1996/ANSI 1998.

Drinking Water System Components–Health Effects—ANSI/NSF 61–2001.

Plumbing Fixtures

Plumbing Fixtures (General Specifications)—FS WW–P–541E/GEN–1980.

Vitreous China Plumbing Fixtures—ANSI/ASME A112.19.2(M)–1990.

Enameled Cast Iron Plumbing Fixtures—ANSI/ASME A112.19.1M–1987.

Porcelain Enameled Formed Steel Plumbing Fixtures—ANSI/ASME A112.19.4(M)–1984.

Plastic Bathtub Units with Addenda Z124.1a–1990 and Z124.16–1991—ANSI Z124.1–1987.

Standard for Porcelain Enameled Formed Steel Plumbing Fixtures—IAPMO TSC 22–85.

Plastic Shower Receptors and Shower Stalls with Addendum Z124.2a–1990—ANSI Z124.2–1987.

Stainless Steel Plumbing Fixtures (Designed for Residential Use)—ANSI/ASME A112.19.3M–1987.

Material and Property Standard for Drains for Prefabricated and Precast Showers—IAPMO PS 4–90.

Plastic Lavatories with Addendum Z124.3a–1990—ANSI Z124.3–1986.

Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Building—ANSI Z97.1–1984.

Water Heater Relief Valve Drain Tubes—ASME A112.4.1–1993.

Flexible Water Connectors—ASME A112.18.6–1999.

Performance Requirements for Backflow Protection Devices and Systems in Plumbing Fixture Fittings—ASME A112.18.3M–1996.

Non-Vitreous Ceramic Plumbing Fixtures—ASME A112.19.9M–1991.

Dual Flush Devices for Water Closets—ASME A119.19.10–1994.

Deck Mounted Bath/Shower Transfer Valves with Integral Backflow Protection—ASME A112.18.7–1999.

Plastic Fittings for Connecting Water Closets to the Sanitary Drainage System—ASME A112.4.3–1999.

Hydraulic Performance Requirements for Water Closets and Urinals, ASME A112.19.6–1995.

Plumbing Fixture Fittings—ASME/ANSI A112.18.1M–1989.

Trim for Water Closet, Bowls, Tanks, and Urinals—ANSI A112.19.5–1979.

Plastic Water Closets, Bowls, and Tanks with Addenda Z124.4a-1990—ANSI Z124.4–1986.

ANSI Z124.5, Plastic Toilet (Water Closets) Seats, 1997.

ANSI Z124.7, Prefabricated Plastic Spa Shells, 1997.

Whirlpool Bathtub Appliances—ASME/ANSI A112.19.7M–1987.

ANSI Z–124.9, Plastic Urinal Fixtures, 1994.

Performance Requirements for Individual Thermostatic Pressure Balancing and Combination Control for Bathing Facilities—ASSE 1016–1988 (ANSI 1990).

Performance Requirements for Pressurized Flushing Devices (Flushometers) for Plumbing Fixtures—ASSE 1037–1990 (ANSI–1990).

Performance Requirements for Water Closet Flush Tank Fill Valves (Ballcocks)—ASSE 1002 Revision 5–1986 (ANSI/ASSE–1979).

Performance Requirements for Hand-held Showers—ASSE 1014–1989 (ANSI–1990).

Hydrants for Utility and Maintenance Use—ANSI/ASME A112.21.3M–1985.

Performance Requirements for Home Laundry Equipment—ASSE 1007–1986.

Performance Requirements for Hot Water Dispensers, Household Storage Type Electrical—ASSE 1023, (ANSI/ASSE–1979).

Plumbing Requirements for Residential Use (Household) Dishwashers—ASSE 1006, (ASSE/ANSI–1986).

Performance Requirements for Household Food Waste Disposer Units—ASSE 1008–1986.

Performance Requirements for Temperature Activated Mixing Valves for Primary Domestic Use—ASSE 1017–1986.

Water Hammer Arresters—ANSI A112.26.1–1969 (R 1975).

Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Whirlpool Bathtub Appliances—ASME/ANSI A112.19.8M–1989.

Air Gaps in Plumbing Systems—ASME A112.1.2–1991.

Performance Requirements for Diverters for Plumbing Faucets with Hose Spray, Anti-Siphon Type, Residential Applications—ASSE 1025 (ANSI/ASSE–1978).

Performance Requirements for Pipe Applied Atmospheric Type Vacuum Breakers—ASSE 1001 (ASSE/ANSI–1990).

Performance Requirements for Hose Connection Vacuum Breakers—ASSE 1011–1981 (ANSI–1982).

Performance Requirements for Wall Hydrants, Frost Proof Automatic Draining, Anti-Backflow Types—ANSI/ASSE 1019–1978.

■ 21. In § 3280.607, add new paragraph (a)(6), redesignate paragraphs (b)(2)(iii) through (v) as paragraphs (b)(2)(iv) through (vi), respectively, add new paragraph (b)(2)(iii), and revise paragraph (c)(6)(iv) to read as follows:

§ 3280.607 Plumbing fixtures.

(a) * * *

(6) *Water conservation.* All lavatory faucets, showerheads, and sink faucets must not exceed a flow of 2.5 gallons per minute (gpm).

(b) * * *

(2) * * *

(iii) All water closets must be low consumption (1.6 gallons per flush (gpf)) closets.

* * * * *

(c) * * *

(6) * * *

(iv) *Electrical.* Wiring must comply with the National Electrical Code NFPA 70–1996, Section 680G.

■ 22. In § 3280.703, revise the table following the introductory text to read as follows:

§ 3280.703 Minimum standards.

* * * * *

Appliances

Heating and Cooling Equipment, Second Edition, with 1999 revisions—UL 1995, 1995.

Liquid Fuel-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles, Seventh Edition, with 1997 revisions—UL 307A–1995.

Fixed and Location-Dedicated Electric Room Heaters, Second Edition, with 1998 revisions—UL 2021–1997.

Electric Baseboard Heating Equipment, Fourth Edition, with 1998 revisions—UL 1042–1994.

Electric Central Air Heating Equipment—UL 1096-Fourth Edition-1986 with revisions July 16, 1986, and January 30, 1988.

Gas Burning Heating Appliances for Manufactured Homes and Recreational Vehicles, Fourth Edition, with 1998 revisions—UL 307B–1995.

Gas Clothes Dryers Volume 1, Type 1 Clothes Dryers—ANSI Z21.5.1–/CSA 7.1–M99—1999 with Addendum Z21.5.1a–1999.

Gas Fired Absorption Summer Air Conditioning Appliances—ANSI Z21.40.1/CGA 2.91–M961996.

Gas-Fired Central Furnaces (Except Direct Vent System Central Furnaces)—ANSI Z21.47–1990 with Addendum Z21.47a–1990 and Z21.47b–1992.

Household Cooking Gas Appliances—ANSI Z21.1–2000.

Refrigerators Using Gas Fuel—ANSI Z21.19–1990, with Addendum ANSI Z21.19a–1992 and Z21.19b–1995.

Gas Water Heaters—Volume 1, Storage Water Heaters with Input Ratings of 75,000 BTU per hour or Less—ANSI Z21.10.1–1998 with Addendum Z21.10.1a–2000.

Household Electric Storage Tank Water Heaters, Tenth Edition—UL 174–1996, with 1997 revisions.

Ferrous Pipe and Fittings

Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless—ASTM A53–93.

Standard Specification for Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines—ASTM A539–1999.

Pipe Threads, General Purpose (Inch)—ANSI/ASME B1.20.1–1983.

Welding and Seamless Wrought Steel Pipe—ANSI/ASME B36.10–1979.

Nonferrous Pipe, Tubing, and Fittings

Standard Specification for Seamless Copper Water Tube—ASTM B88–93.

Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service—ASTM B280, A–95.

Connectors for Gas Appliances—ANSI Z21.24/CGA 6.10–M97–1997.

Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves—ANSI Z21.15/CGA 9.1–M97–1997.

Standard for Gas Supply Connectors for Manufactured Homes—IAPMO TSC 9–1997.

Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tubes—ASTM B251–93.

Standard Specification for Seamless Copper Pipe, Standard Sizes—ASTM B42–93.

Miscellaneous

Factory-Made Air Ducts and Connectors, Ninth Edition—UL 181, 1996 with 1998 revisions.

Standard for Safety Closure Systems for use with Rigid Air Ducts and Air Connectors, UL 181A, 1994, with 1998 revisions.

Standard for Safety Closure Systems for use with Flexible Air Ducts and Air Connectors, First Edition—UL 181B, 1995, with 1998 revisions.

Tube Fittings for Flammable and Combustible Fluids, Refrigeration Service, and Marine Use, Sixth Edition—UL 109–1997, with 2001 revisions.

Pigtails and Flexible Hose Connectors for LP-Gas, Seventh Edition—UL 569, 1995 with 2001 revisions.

Roof Jacks for Manufactured Homes and Recreational Vehicles, Eighth Edition—UL 311, 1994, with 1998 revisions.

Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems—ANSI Z21.22/CSA 4.4–M99, 1999.

Automatic Gas Ignition Systems and Components—ANSI Z21.20 with Addendum Z21.20a–2000.

Automatic Valves for Gas Appliances—ANSI Z21.21/CSA 6.5–2000.

Gas Appliance Thermostats—ANSI Z21.23–1989, with Addendum Z21.23a–1991.

Gas Vents, Ninth Edition—UL 441, 1996 with 1999 revisions.

Standard for the Installation of Oil-Burning Equipment, NFPA 31, 1997 Edition.

National Fuel Gas Code—NFPA 54–2002/ANSI Z223.1–2002.

Warm Air Heating and Air Conditioning Systems, NFPA 90B, 1996 Edition.

Liquefied Petroleum Gas Code, NFPA 58–2001 Edition.

Flares for Tubing—SAE–J533b–1992.

Factory-Built Chimneys for Residential Type and Building Heating Appliances, Ninth Edition—UL 103, 1995, with 1999 revisions.

Factory-Built Fireplaces, Seventh Edition—UL 127–1996, with 1999 revisions.

Solid-Fuel Type Room Heaters, Fifth Edition—UL 1482, 1995, with 2000 revisions.

Fireplace Stoves, Eight Edition, with 2000 revisions—UL 737, 1996.

Unitary Air-Conditioning and Air-Source Heat Pump Equipment—ANSI/ARI 210/240–89.

AGA Requirements for Gas Connectors for Connection of Fixed Appliances for Outdoor Installation, Park Trailers, and Manufactured (Mobile) Homes to the Gas Supply—No. 3–87.

■ 23. In § 3280.704, revise paragraph (b)(5)(i) to read as follows:

§ 3280.704 Fuel supply systems.

* * * * *

(b) * * *

(5) *LP-gas safety devices.* (i) DOT containers must be provided with safety relief devices as required by the regulation of the U.S. Department of Transportation. ASME containers must be provided with relief valves in accordance with subsection 2.3.2 of NFPA 58–2001, Standard for the Storage and Handling Liquefied Petroleum Gases. Safety relief valves must have direct communication with the vapor space of the vessel.

* * * * *

■ 24. In § 3280.705, revise paragraphs (b)(3), (b)(4), (c)(2), (l)(1), (l)(2)(ii), and (l)(3) to read as follows:

§ 3280.705 Gas piping systems.

* * * * *

(b) * * *

(3) Copper tubing must be annealed type, Grade K or L, conforming to the Standard Specification for Seamless Copper Water Tube, ASTM B88–93, or must comply with the Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Service, ASTM B280–1995. Copper tubing must be internally tinned.

(4) Steel tubing must have a minimum wall thickness of 0.032 inch for tubing of ½ inch diameter and smaller and 0.049 inch for diameters ½ inch and larger. Steel tubing must be in accordance with ASTM Standard Specification for Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines, ASTM A539–1999, and must be externally corrosion protected.

(c) * * *

(2) The connection(s) between units must be made with a connector(s) listed for exterior use or direct plumbing sized in accordance with § 3280.705(d). A shutoff valve of the non-displaceable rotor type conforming to ANSI Z21.15–1997, Manually Operated Gas Valves for Appliances, Appliances Connector Valves, and Hose End Valves, suitable for outdoor use must be installed at each crossover point upstream of the connection.

* * * * *

(l) * * *

(1) A listed LP-Gas flexible connection conforming to UL 569–1995, Pigtails and Flexible Hose Connectors for LP Gas, or equal must be supplied when LP-Gas cylinders(s) and regulator(s) are supplied.

(2) * * *

(ii) The outlet must be provided with an approved quick-disconnect device, which must be designed to provide a positive seal on the supply side of the gas system when the appliance is disconnected. A shutoff valve of the non-displaceable rotor type conforming to ANSI Z21.15–1997, Manually Operated Gas Valves, must be installed immediately upstream of the quick-disconnect device. The complete device must be provided as part of the original installation.

* * * * *

(3) *Valves.* A shutoff valve must be installed in the fuel piping at each appliance inside the manufactured home structure, upstream of the union or connector in addition to any valve on the appliance and so arranged to be accessible to permit servicing of the appliance and removal of its components. The shutoff valve must be located within 6 feet of any cooking appliance and within 3 feet of any other appliance. A shutoff valve may serve more than one appliance if located as required by this paragraph (3). The shutoff valve must be of the non-displaceable rotor type and conform to ANSI Z21.15–1997, Manually Operated Gas Valves.

* * * * *

■ 25. In § 3280.706, revise paragraph (b)(3) to read as follows:

§ 3280.706 Oil piping systems.

* * * * *

(b) * * *

(3) Copper tubing must be annealed type, Grade K or L conforming to the Standard Specification for Seamless Copper Water Tube, ASTM B88–93, or shall comply with ASTM B280–1995, Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.

* * * * *

■ 26. In § 3280.707, revise paragraph (f) to read as follows:

§ 3280.707 Heat producing appliances.

* * * * *

(f) *Oil-fired heating equipment.* All oil-fired heating equipment must conform to Liquid Fuel-burning Heating Appliances for Manufactured Homes and Recreational Vehicles, UL 307A—1995, with 1997 revisions, and be installed in accordance with Standard for the Installation of Oil Burning Equipment, NFPA 31–1997. Regardless of the requirements of the above-referenced standards, or any other standards referenced in this part, the following are not required:

(1) External switches or remote controls which shut off the burner or the flow of oil to the burner, or

(2) An emergency disconnect switch to interrupt electric power to the equipment under conditions of excessive temperature.

■ 27. In § 3280.709, add paragraph (h) to read as follows:

§ 3280.709 Installation of appliances.

* * * * *

(h) A corrosion resistant water drip collection and drain pan must be

installed under each water heater that will allow water leaking from the water heater to drain to the exterior of the manufactured home, or to a drain.

■ 28. In § 3280.714, revise paragraph (a)(2) to read as follows:

§ 3280.714 Appliance cooling.

(a) * * *

(2) Gas fired absorption air conditioners must be listed or certified in accordance with ANSI Z21.40.1–1996, Gas Fired, Heat Activated, Air Conditioning and Heat Pump Appliances, and certified by a nationally recognized testing agency capable of providing follow-up service.

* * * * *

■ 29. In § 3280.715, revise paragraph (c), the introductory text of paragraph (e), and paragraph (e)(1) to read as follows:

§ 3280.715 Circulating air systems.

* * * * *

(c) *Joints and seams.* Joints and seams of sheet metal and factory-made flexible ducts, including trunks, branches, risers, crossover ducts, and crossover duct plenums, shall be mechanically secured and made substantially airtight. Slip joints in sheet metal ducts shall have a lap of at least one inch and shall be mechanically fastened. Tapes or caulking compounds shall be permitted to be used for sealing mechanically secure joints. Sealants and tapes shall be applied only to surfaces that are dry and dust-, dirt-, oil-, and grease-free. Tapes and mastic closure systems for use with factory-made rigid fiberglass air ducts and air connectors shall be listed in accordance with UL Standard 181A–1994, with 1998 revisions. Tapes and mastic closure systems used with factory-made flexible air ducts and air connectors shall be listed in accordance with UL Standard 181B–1995, with 1998 revisions.

* * * * *

(e) *Registers and grilles.* Fittings connecting the registers and grilles to the duct system must be constructed of metal or material that complies with the requirements of Class 1 or 2 ducts under UL 181–1996 with 1998 revisions, Factory Made Air Ducts and Connectors. Air supply terminal devices (registers) when installed in kitchen, bedrooms, and bathrooms must be equipped with adjustable closeable dampers. Registers or grilles must be constructed of metal or conform with the following:

(1) Be made of a material classified 94V–0 or 94V–1, when tested as described in UL 94–1996, with 2001 revisions, Test for Flammability of Plastic Materials for Parts in Devices and Appliances, Fifth Edition; and

* * * * *

■ 30. In § 3280.801, revise paragraphs (a) and (b) to read as follows:

§ 3280.801 Scope.

(a) Subpart I of these Standards and part B of Article 550 of the National Electrical Code (NFPA No. 70–2005) cover the electrical conductors and equipment installed within or on manufactured homes and the conductors that connect manufactured homes to a supply of electricity.

(b) In addition to the requirements of this Standard and Article 550 of the National Electrical Code, NFPA No. 70–2005, the applicable portions of other Articles of the National Electrical Code must be followed for electrical installations in manufactured homes. The use of arc-fault breakers under Articles 210.12(A) and (B), 440.65, and 550.25(A) and (B) of the National Electrical Code, NFPA No. 70–2005 is not required. However, if arc-fault breakers are provided, such use must be in accordance with the National Electrical Code, NFPA No. 70–2005. Wherever the requirements of this standard differ from the National Electrical Code, these standards apply.

* * * * *

■ 31. In § 3280.803, redesignate the receptacle/cap illustration and caption that follows paragraph (g) to the end of paragraph (f), and revise the redesignated caption following the redesignated illustration, paragraph (k)(1), the introductory text of paragraph (k)(3), and paragraphs (k)(3)(ii) and (k)(3)(iii) to read as follows:

§ 3280.803 Power supply.

* * * * *

(f) * * *

50-ampere 125/250 volt receptacle and attachment-plug-cap configurations, 3 pole, 4-wire grounding types used for manufactured home supply cords and manufactured home parks. Complete details of the 50-ampere cap and receptacle can be found in the American National Standard Dimensions of Caps, Plugs, and Receptacles, Grounding Type (ANSI/NEMA—WD–6–1997–Wiring Devices–Dimensional Specifications).

* * * * *

(k) * * *

(1) One mast weatherhead installation installed in accordance with Article 230 of the National Electrical Code, NFPA No. 70–2005, containing four continuous insulated, color-coded, feeder conductors, one of which shall be an equipment grounding conductor; or

* * * * *

(3) Service equipment installed on the manufactured home in accordance with Article 230 of the National Electrical Code, NFPA No. 70–2005, and the following requirements:

* * * * *

(ii) Exterior equipment, or the enclosure in which it is installed must be weatherproof and installed in accordance with Article 312.2(A) of the National Electrical Code, NFPA No. 70–2005, and conductors must be suitable for use in wet locations;

(iii) Each neutral conductor must be connected to the system grounding conductor on the supply side of the main disconnect in accordance with Articles 250.24, 250.26, and 250.28 of the National Electrical Code, NFPA No. 70–2005.

* * * * *

■ 32. In § 3280.804, revise paragraph (a) and the first sentence of paragraph (k) to read as follows:

§ 3280.804 Disconnecting means and branch-circuit protective equipment.

(a) The branch-circuit equipment is permitted to be combined with the disconnecting means as a single assembly. Such a combination is permitted to be designated as a distribution panelboard. If a fused distribution panelboard is used, the maximum fuse size of the mains must be plainly marked with lettering at least ¼-inch high and that is visible when fuses are changed. (See Article 110.22 of NFPA 70–2005, National Electrical Code, concerning identification of each disconnecting means and each service, feeder, or branch circuit at the point where it originated and the type marking needed.)

* * * * *

(k) When a home is provided with installed service equipment, a single disconnecting means for disconnecting the branch circuit conductors from the service entrance conductors must be provided in accordance with Article 230, Part VI of the National Electrical Code, NFPA No. 70–2005. * * *

* * * * *

■ 33. In § 3280.805, revise paragraph (a)(3)(iv) to read as follows:

§ 3280.805 Branch circuits required.

(a) * * *

(3) * * *

(iv) The rating of the range branch circuit is based on the range demand as specified for ranges in § 3280.811(a)(5). For central air conditioning, see Article 440 of the National Electrical Code, NFPA No. 70–2005.

* * * * *

■ 34. In § 3280.806, revise paragraph (a)(2) and paragraph (d)(9) to read as follows:

§ 3280.806 Receptacle outlets.

(a) * * *

(2) Installed according to Article 406.3 of the National Electrical Code, NFPA No. 70–2005.

* * * * *

(d) * * *

(9) At least one wall receptacle outlet shall be installed in bathrooms within 36 inches (914 mm) of the outside edge of each basin. The receptacle outlet must be located on a wall that is adjacent to the basin location. This receptacle is in addition to any receptacle that is part of a lighting fixture or appliance. The receptacle must not be enclosed within a bathroom cabinet or vanity.

* * * * *

■ 35. In § 3280.807, revise paragraph (c) to read as follows:

§ 3280.807 Fixtures and appliances.

* * * * *

(c) If a lighting fixture is provided over a bathtub or in a shower stall, it must be of the enclosed and gasketed type, and be listed for use in wet locations. See also Article 410.4(D) of the National Electrical Code, NFPA No. 70–2005.

* * * * *

■ 36. In § 3280.808, revise paragraphs (a), (m), (o), and (q), remove paragraph (r), and re-designate paragraph (s) as paragraph (r), to read as follows:

§ 3280.808 Wiring methods and materials.

(a) Except as specifically permitted by this part, the wiring methods and materials specified in the National Electrical Code, NFPA No. 70–2005, must be used in manufactured homes.

* * * * *

(m) Outlet boxes of dimensions less than those required in Table 314.16(A) of the National Electrical Code, NFPA No. 70–2005, are permitted provided the box has been tested and approved for that purpose.

* * * * *

(o) Outlet boxes must fit closely to openings in combustible walls and ceilings and must be flush with the finish surface or project therefrom. In walls and ceilings of noncombustible material, outlet boxes and fittings must be installed so that the front edge of the box or fitting will not be set back from the finished surface more than ¼ inch. Plaster, drywall, or plasterboard surfaces that are broken or incomplete must be repaired so that there will be no gaps or open spaces greater than ⅛ inch at the edge of the box or fitting.

* * * * *

(q) A substantial brace for securing a box, fitting, or cabinet must be as described in the National Electrical Code, NFPA 70–2005, Article 314.23(B), or the brace, including the fastening mechanism to attach the brace to the home structure, must withstand a force of 50 lbs. applied to the brace at the intended point(s) of attachment for the box in a direction perpendicular to the surface on which the box is installed.

* * * * *

■ 37. In § 3280.811, revise the introductory text of paragraph (b) to read as follows:

§ 3280.811 Calculations.

* * * * *

(b) The following is an optional method of calculation for lighting and appliance loads for manufactured homes served by single 3-wire 120/240 volt set of feeder conductors with an ampacity of 100 or greater. The total load for determining the feeder ampacity may be computed in accordance with the following table instead of the method previously specified. Feeder conductors whose demand load is determined by this optional calculation are permitted to have the neutral load determined by Article 220.61 of the National Electrical Code, NFPA No. 70–2005. The loads identified in the table as ''other load'' and as ''Remainder of other load'' must include the following:

* * * * *

Dated: November 22, 2005.

Brian D. Montgomery,

Assistant Secretary for Housing-Federal Housing Commissioner.

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