

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT**24 CFR Parts 3280, 3282, 3285, and 3286**

[Docket No. FR-6233-F-02]

RIN 2502-AJ58

Manufactured Home Construction and Safety Standards

AGENCY: Office of the Assistant Secretary for Housing-Federal Housing Commissioner, Department of Housing and Urban Development (HUD).

ACTION: Final rule.

SUMMARY: This final rule amends the Federal Manufactured Home Construction and Safety Standards (MHCSS or the Construction and Safety Standards) by adopting most of the fourth and fifth groups of recommendations made to HUD by the Manufactured Housing Consensus Committee (MHCC). This rule also amends the Manufactured Home Procedural and Enforcement Regulations, the Model Manufactured Home Installation Standards, and the Manufactured Home Installation Program regulations. The MHCC prepared and submitted to HUD its fourth and fifth groups of recommendations to improve various aspects of the MHCSS. HUD reviewed those proposals and drafted a number of proposed revisions to the MHCSS and associated regulations. On July 19, 2022, HUD published a proposed rule detailing these revisions to provide the public an opportunity to comment. The comment period closed on September 19, 2022. This final rule adopts HUD's proposed revisions based upon the MHCC's fourth and fifth groups of recommendations with some minor revisions made in response to the public comments.

DATES: *Effective:* March 17, 2025. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register beginning March 17, 2025. The incorporation by reference of certain other publications listed in the rule was approved by the Director of the Federal Register as of July 3, 2014.

FOR FURTHER INFORMATION CONTACT: Teresa B. Payne, Administrator, Office of Manufactured Housing Programs, Office of Housing, Department of Housing and Urban Development, 451 7th Street SW, Washington, DC 20410; telephone 202-402-5365 (this is not a toll-free number). HUD welcomes and is prepared to receive calls from individuals who are deaf or hard of

hearing, as well as individuals with speech or communication disabilities. To learn more about how to make an accessible telephone call, please visit: <https://www.fcc.gov/consumers/guides/telecommunications-relay-service-trs>.

SUPPLEMENTARY INFORMATION:**I. Background**

On August 22, 1974, the President signed the Housing and Community Development Act of 1974 (Pub. L. 93-383, 88 Stat. 633-2), which contained the National Mobile Home Construction and Safety Standards Act of 1974 (Pub. L. 93-383, 88 Stat. 700; tit. VI; 42 U.S.C. 5401 *et seq.*) (the Act). The Act, which was later renamed the National Manufactured Home Construction and Safety Standards Act of 1974, authorizes HUD to establish and amend the Manufactured Home Construction and Safety Standards (MHCSS) codified in title 24 of the Code of Federal Regulations (CFR), part 3280. The Act was amended by the Manufactured Housing Improvement Act of 2000 (Pub. L. 106-569, December 27, 2000), which expanded the Act and created the MHCC, a consensus committee responsible for providing HUD recommendations to adopt, revise, and interpret the MHCSS.¹ The MHCSS only applies to the design, construction, and installation of new manufactured homes.

The MHCC held its first meeting in August 2002. The MHCC began considering revisions to the MHCSS afterwards. The MHCC developed its own priorities for preparing proposed revisions for HUD to consider. As the MHCC's efforts proceeded, proposed revisions to the MHCSS were divided into groups of recommendations and provided to HUD in sets.

This rule is based on the fourth and fifth sets of MHCC recommendations to HUD. HUD reviewed the recommendations submitted by the MHCC and made editorial revisions and additions prior to publishing the proposed changes in the **Federal Register** on July 19, 2022 (87 FR 43114). HUD received 49 comments on the proposed rule and made further revisions in response to the public comments. The following is a

¹ The MHCC is composed of twenty-one voting members as provided under section 604(a)(3)(B) of the Manufactured Housing Improvement Act of 2000. The twenty-one members are comprised of seven producers or retailers of manufactured housing, seven persons representing consumer interests, and seven general interest or public officials, which rotate. The current group of seven producers or retailers of manufactured homes can be broken down into two small businesses that manufacture homes, four large businesses that manufacture homes, and one retailer.

discussion of the specific revisions to the MHCSS that were included in the proposed rule and are enacted by this final rule.

II. Changes Made at the Final Rule Stage

In response to public comments and in further consideration of issues addressed at the proposed rule stage, this final rule adopts the proposed rule, published at 87 FR 43114 (July 19, 2022), with the revisions discussed in detail below.

A. Clarification of Fire Sprinkler Requirements for Manufactured Homes

HUD received numerous public comments on the proposed sprinkler standard. The comments addressed topics including whether HUD has statutory authority to impose any fire sprinkler standard, whether the voluntary sprinkler standard would be the first step to HUD imposing a mandatory standard, and whether the HUD regulations would be duplicative of existing local or State regulations. While HUD discusses these comments and its legal authority in greater detail in the public comment section of this preamble, the comments demonstrate that clarification on certain topics would be beneficial. With respect to the fire sprinkler standard itself, the Secretary has not received a recommendation from the MHCC on the imposition of a mandatory fire sprinkler standard and cannot consider or act until that time. In addition, HUD defers to consumer choices, as well as State and local jurisdictions that have the appropriate expertise, to determine the necessity for installing fire sprinkler systems provided the requirements apply to all single family homes, including manufactured homes.

The comments also raised a question of whether the proposed language of § 3280.214 is sufficiently clear for parties with equity in the rule to understand the requirements related to installation of a fire sprinkler system. One commenter suggested a revision to the language by adding "when a manufacturer installs a fire sprinkler system as an optional feature or to meet state or local laws and regulations" after the phrase "Fire sprinkler systems are not required by this subpart; however," in § 3280.214(a)(1). HUD accepted this language and added "as selected by the consumer" after "optional feature" because it provides necessary clarity on commenters' concerns about their obligations under the final rule and was adopted by HUD.

HUD made minor changes in the final rule to clarify and streamline the

language of § 3280.214(e). In § 3280.214(e)(1), HUD moved the phrase “separated from heat sources as required by the sprinkler manufacturer’s installation instructions” from the end of the paragraph and placed it after the first usage of “sprinklers.” This placement clarifies that the standards apply when a fire sprinkler system is selected by the consumer as an optional feature of the home or when required to meet State or local law. In § 3280.214(e)(2), the phrase “located within the distance to a heat source as specified in table 7.5.5.3 of NFPA 13D (incorporated by reference, see § 3280.4)” has been moved and placed immediately after the first usage of “sprinklers.” This new language specifies that the optional sprinklers must be located near the heat source in the described manner.

B. Testing and Certification for Fire Sprinkler Systems

HUD proposed language that initially placed the responsibility of testing and certifying the water supply pressure available for fire sprinklers, if installed as a voluntarily add-on feature, on the installers of manufactured homes. HUD received several comments stating that installers of manufactured homes do not have control over the design and production process and they may lack relevant expertise to meet this obligation. The commenters offered three remedies: (1) HUD could set requirements for factory production to place the obligations on manufacturers; (2) the water supply pressure testing and certification could be completed by a fire protection technician during the installation of the home; or (3) HUD could withdraw the rule.

HUD has revised § 3280.214(q), (r), and (t) to require that this water supply pressure testing and certification be completed by a fire protection technician during the installation of the home upon consideration of the commenter’s suggestions. HUD selected this option because it addresses the concerns raised by the commenters and fire protection technicians have the most relevant and specialized experience needed for testing and certifying the adequacy of water supply pressure for fire sprinkler systems compared to manufactured home installers.

C. Exterior Door Requirements

HUD proposed removing language from § 3280.105 providing that “[d]oor seals are permitted to reduce the opening, either vertically or horizontally, a maximum of one inch” in the proposed rule. HUD received two

comments explaining that door seals on exterior doors were important because they prevent the infiltration of sound, light, drafts, or moisture, among other things, in manufactured homes. The commenters noted that manufacturers would no longer be allowed to account for the reduction that door seals may have on door size and opening measurements because the reference had been removed, which would impact the required sizes of exterior doors. These concerns led the commenters to recommend that the final rule add back the allowance for door seals to § 3280.105(b)(2). The explanations on the necessity of the door seals are compelling and HUD adopts the recommendation, with the exception for at least one exterior door to meet full measured opening requirements for egress and safety purposes.

Commenters also encouraged HUD to consider the related issue of whether the phrase “doorstops” should be included in the current text of § 3280.105(b)(2). Doorstops, similar to door seals, can narrow the opening of exterior doors in some situations. Commenters noted that narrower door openings can interfere with the ability of first responders to transport emergency items such as standard width gurneys through exterior doors and into the home. To address commenters’ concerns about the width of exterior doors, HUD will add the phrase “and/or doorstops” after the term “[d]oor seals” in the final sentence of § 3280.105(b)(2). The language of the revised phrase is “Door seals and/or door stops are permitted to reduce the opening, either vertically or horizontally, by a maximum of one inch.” This language resolves commenters’ concerns and promotes safety in manufactured homes.

D. Definition of Room

HUD received a public comment noting that manufactured homes can burn more quickly than other types of homes because of their open floor plans. HUD has considered how to address the commenter’s concerns and added a definition of “room” to § 3280.105(a)(2)(i). This language clarifies that compliance with the exterior door placement requirements must account for situations like open floor plans where a floor plan may be unclear about the placement of exterior doors in the home. This amendment requires homes with open floor plans to have the required exterior doors in separate rooms.

E. Loose Fill Materials

The proposed change to § 3280.215 provides that membrane penetrations of

fire-resistant-rated walls or ceilings must not lead to reductions of fire-resistance-ratings and that the annular spaces between membrane penetrations and steel electrical boxes must use “cellulose loose-fill or other loose-fill insulation.” A commenter noted that the proposed language could lead manufacturers to understand the rule as requiring or being limited only to cellulose-only insulation even though manufactured homes often use different materials for loose-fill insulation apart from cellulose. HUD considered the concerns and revised § 3280.215(d)(2)(i)(B) to state “where the wall cavity is filled with loose-fill insulation.” This language was provided by the commenter to resolve their concern and clarifies the requirements of the rule.

F. Provision of Operating Instructions

HUD proposed removing the language of § 3280.709(a) requiring that manufacturers leave appliance manufacturer instructions attached to the appliances because HUD had examined the regulatory text and concluded that the language caused confusion when read alongside § 3280.711, which currently states that “[o]perating instructions must be provided with each appliance. The operating and installation instructions for each appliance must be provided with the homeowner’s manual.” In addition, HUD proposed to revise § 3280.711 to allow for the requirements for operating instructions to be met through the provision of permanent Quick Response (QR) codes that would streamline documentation for manufacturers.

HUD received a comment expressing concern that the proposed revision of § 3280.709(a) would conflict with fuel gas installation code requirements and safety standards by allowing the provision of a single set of instructions. HUD has revised the language of the final rule to clarify that § 3280.711 still requires that one copy of the operating instructions for each appliance be provided with the homeowners’ manual and a second copy shall be provided with the appliance unless the appliance has a QR code. Under the rule, a QR code can only replace the copy of the operating instructions that comes with the appliance itself. It may not replace the copy that must be provided with the homeowners’ manual.

G. ASCE/SEI 7–05 Standard

HUD proposed updating ASCE 7–88 to ASCE 7–05, which would require amending the wind speed references used to design manufactured homes in

Wind Zones II and III from “fastest mile” to “three-second gust” parameters. HUD supported the proposed wind speed references by completing a general comparison of ASCE 7–88 and ASCE 7–05, followed by an in-depth analysis to determine comparable and equivalent wind speeds for Wind Zones II and III that align with the “three-second gust” wind speed methodology and terminology employed in ASCE 7–05, instead of the “fastest mile” approach utilized in ASCE 7–88. HUD performed two different methods of analysis to determine revised windspeeds. The first analysis reviewed the HUD wind speed/zone map with the wind speed map in ASCE 7–05, to verify that a manufactured home would be subject to comparable wind speeds if designed using ASCE 7–05. The second used the prescriptive wind pressures shown in the Table of Design Wind Pressures under § 3280.305 as a baseline to perform a series of iterative calculations to determine wind speeds that would produce similar wind pressures for Wind Zones II and III.

HUD received numerous comments on the potential impact of implementing ASCE 7–05 as the appropriate standard, which HUD fully discusses in the public comment section. These concerns ranged from the ASCE 7–05 imposing more onerous requirements than the current standards, the ASCE 7–05 examining non-existent or obsolete wind speeds, the costs of compliance with the ASCE 7–05, and the lack of consideration of high wind prone regions in the Exposure D definition. These concerns led HUD to return this recommendation to the MHCC for reconsideration in light of the identified issues. Updating the ASCE reference standard is not appropriate without updating several sections in the MHCSS, including the values in the Table of Design Wind Pressures in § 3280.305(c)(1)(ii)(B), the Wind Speed Map and geographic boundaries identified in § 3280.305(c)(2) and (4), and references to Exposure D, which require further analysis and consideration by the MHCC before HUD can update the ASCE 7 reference standard. These concerns have led HUD to return this recommendation to the MHCC for reconsideration in light of the identified issues.

H. Number of Dwelling Units

HUD proposed amending the definition of dwelling in § 3280.2 to include “any structure that contains one to a maximum of three dwelling units, designed to be permanently occupied for residential living purposes.” HUD sought public comment on this

provision, specifically requesting feedback on the benefits and challenges if a four-unit maximum were considered and how any conflict with differing State maximums would be handled. HUD received numerous comments, which are discussed in detail in the comment section, but consideration of the comments led HUD to increase the limit to four units for the definition of multi-dwelling unit manufactured homes in § 3280.2 as requested by the commenters.

I. Required Branch Circuits

HUD made several revisions to § 3280.805(a)(1) in the final rule. HUD added the phrase “each story of” to the final rule language to accommodate dwelling units that may have more than one story. HUD moved the phrase “number of 15 or 20 ampere lighting circuits” from the end of § 3280.805(a)(1) to the beginning of the sentence to clarify the method of calculation. HUD also provided an illustrative example to demonstrate how the formula would be used to calculate the number of lighting circuits, but notes this example does not change the underlying method of calculation provided in the proposed rule.

J. Multi-Dwelling Unit Home Addition To Reporting Requirements

When reviewing instances where regulatory text had to be updated to incorporate the change to the number of dwelling units from three to four, HUD identified § 3282.552 as an instance where additional clarity would be beneficial. Specifically, the second sentence of § 3282.552 was amended to require that the relevant manufacturer report include the number of dwelling units. This information is collected at this stage because the manufacturers are in the best situation to collect and report this information.

K. Change to Gas Piping Requirements

As explained earlier, HUD amended the definition of dwelling to include any structure that contains one to a maximum of four dwelling units. This change required HUD to review the remainder of its regulations to ensure the requirements were clear and uniform. Upon review, HUD revised § 3280.705(l)(3) by replacing the phrase “manufactured home structure, upstream of the union” with “dwelling unit structure.” HUD enacted this change to accommodate and reconcile this language with the provisions of multi-dwelling unit manufactured homes.

L. New Fire Resistance Rating Language

HUD proposed that each dwelling unit be separated by wall and floor assemblies having not less than a 1-hour fire resistance except in certain circumstances listed in § 3280.215(a). HUD further proposed that the fire-resistance-rated floor/ceiling and wall assemblies must extend in certain manner unless an exception listed under § 3280.215(b) was applicable. Public commenters noted that the proposed rule mirrored portions of the 2021 International Residential Code (IRC) R302.3 but was missing the exception for homes with installed fire sprinklers. A commenter recommended HUD incorporate the 2021 IRC R302.3 exception 1 into § 3280.215(b)(3).

After reviewing the relevant materials, HUD accepts the commenter’s suggestion and incorporates the recommended language. HUD accepted the proposal because it promotes uniformity between the MHCSS and 2021 IRC R302.3. It also provides an avenue for potential cost reduction where automatic fire sprinklers are installed in each dwelling unit. The exception, found at § 3280.215(b)(3), provides an allowance for multi-dwelling unit manufactured homes equipped with automatic fire sprinklers in each dwelling unit to reduce a fire resistance rating of walls and floors from a 1 hour fire resistance rating to a ½ hour fire resistance rating.

M. AAMA/WDMA/CSA 101/I.S.2/A440–17

HUD proposed amending the testing standards in §§ 3280.403, 3280.404, and 3280.405. Specifically, HUD proposed revising the AAMA 1701.2 from the 1995 version to the 2012 version, the ANSI Z97.1 from the 2004 version to the 2009 version, the AAMA 1702.2 from the 1995 version to the 2012 version, and the AAMA/WDMA/CSA 101/I.S.2/A440–08 North American Fenestration Standard (NAFS) to the AAMA/WDMA/CSA 101/I.S.2/A440–17. HUD further proposed using the AAMA/WDMA/CSA 101/I.S.2/A440–17 as an alternative compliance method for the sections of the MHCSS that govern windows, sliding glass doors, skylights, egress windows, and swinging exterior passage doors.

HUD received numerous comments about the proposed amendment to adopt the 2017 version of AAMA/WDMA/CSA 101/I.S.2/A440 at § 3280.4(s)(6). The comments stated that HUD adopting the AAMA/WDMA/CSA 101/I.S.2/A440–17 would make certification of compliance more difficult and would increase costs to consumers without providing value

in exchange. They recommended that AAMA/WDMA/CSA 101/I.S.2/A440–08 or AAMA/WDMA/CSA 101/I.S.2/A440–11 be adopted rather than the proposed change.

After reviewing the comments and the MHCC's recommendations, HUD has decided to reject the commenters' recommendations. In March 2016 (Log 140), the MHCC recommended that HUD adopt the 2011 version. In December 2017 (Log 201), the MHCC recommended that HUD adopt the 2017 version of the AAMA/WDMA/CSA 101/I.S.2/A440. The MHCC explained that the AAMA/WDMA/CSA 101/I.S.2/A440–08 reference standard was significantly outdated and should be updated to the 2017 version. This recommendation, when considered alongside the absence of major differences between the 2011 and 2017 standards, has led HUD to conclude the AAMA/WDMA/CSA 101/I.S.2/A440–17 standard would not make certification more difficult or impose increased costs on consumers. HUD incorporated the 2017 version of the AAMA/WDMA/CSA 101/I.S.2/A440 in this final rule to ensure manufactured homes are constructed using more modern, relevant, and effective technologies and materials.

N. Change to Water Heater Language

HUD proposed amending § 3280.709(a) and (g). HUD received public comments suggesting that related language in § 3280.709(h) be amended to account for technology changes around water heaters. Specifically, the commenters recommended that the requirement for drain pans should be revised to facilitate the use of tankless water heaters. The technological advances described by the commenters, as well as the fact that manufactured homes often do not have a storage-type water heater, have led HUD to conclude that amending § 3280.709(h) is appropriate. HUD has wholly accepted the proposed language provided by the commenters, which adds the phrase “storage tank” to the current language of § 3280.709(h).

O. Use of Treated Wood in Exterior Applications Only

HUD proposed revising § 3280.304(a) to state that “[d]imension and board lumber must not exceed 19 percent moisture content at the time of installation, except that treated lumber used for exterior purposes only may have a moisture content exceeding 19 percent.” In the public comment stage, a commenter explained that the proposed language could be improved by adding the phrase “and does not

extend into the main home construction” after the word “only” in § 3280.304(a). HUD accepted this recommendation in the final rule without change because the language allows flexibility with respect to porch designs with treated lumber that extend into the main roof cavity and does not undermine the remainder of the language when engaging in this change. The added language prevents the use of treated lumber in areas that are not exposed to the elements addressing durability concerns and consistent with the intended use of the treated lumber in exterior areas only.

P. Non-Update of UL 1995–11 Standard

HUD is not updating the UL 1995 standard in the final rule because the standard was withdrawn and replaced by UL 60335–2–40 on January 1, 2024. UL 60335–2–40 has been incorporated into the final rule in §§ 3280.4 and 3280.703. As a result, UL 1995 has been removed from this rule and the regulations because the standard is no longer relevant.

Q. Changes To Ensure Uniformity in Regulatory Text

HUD made several non-substantive cross-cutting changes to the regulatory text to ensure the language of the final rule was uniform and not confusing. In § 3280.103(c)(3), HUD changed the phrase “mechanical ventilation” to “a local exhaust system” to ensure consistency between paragraphs (c)(2) and (3). HUD changed § 3280.214(o)(3) by revising the single mention of “Allowable Pressure” to “Available Pressure,” which promotes consistency between paragraphs (o)(2) and (3). These changes do not change the substance of the regulations, instead merely clarifying certain language.

R. Restructuring of IBR Standards

The final rule restructures a portion of the incorporation by reference (IBR) section by relisting fifteen standards from their ANSI identifier to their CSA Group identifier. Although the standards are now listed under the CSA Group's header in 24 CFR 3280.4(r), manufacturers must still comply with the listed ANSI-specific standard that is jointly accredited with the CSA Group standard. Next to each CSA Group listing is the relevant ANSI standard to which compliance is required.

S. Six Month Implementation Window

A number of commenters requested that HUD extend the deadline for enforcement because the rule updates 74 standards, implements 16 new standards, and has several regulatory

text changes. Commenters provided various solutions from a year extension to bifurcated effective and enforcement dates. HUD has established a six-month delayed effective date for the rule consistent with section 604(c) of the Housing and Community Development Act of 1974 (Pub. L. 93–383, 88 Stat. 701, tit. VI, sec. 601–628; 42 U.S.C. 5401 *et seq.*), which is sufficient time to allow manufacturers to comply with the changes and new standards in the final rule. HUD does not want to further delay implementation as these updates are overdue in many cases and should reap cost-saving benefits to manufacturers and consumers. HUD declines to implement a bifurcated effective versus enforcement date timeline because bifurcation could lead to confusion about deadlines and difficulties with enforcement.

T. Severability

It is HUD's intention that the provisions of the proposed rule operate independently of each other. This intention is demonstrated by the structure of this rule, which is comprised of numerous distinct and discrete changes to standards that function independently of each other. As one example, the changes to insulation, room dimensions, exterior doors, and fire safety ratings are independent from one another and can be independently enacted if any one or more of the aforementioned changes are invalidated. In the event that any provision of this rule is declared invalid or stayed, it is HUD's intent that those provisions be severable and that those unaffected remain valid. Additionally, it is HUD's intention that any provision(s) of the rule not affected by a declaration of invalidity or stayed shall be severable and remain valid. HUD concludes it would separately adopt all of the provisions contained in this rule through separate rulemaking if provisions were declared invalid or stayed.

III. Public Comment Summary

The public comment period for this notice closed on September 19, 2022, and HUD received 49 comments. Several comments were identical in substance and two commenters submitted duplicative comments. The comments came from non-profits, independent consultants, private citizens, State and city housing administrations, national trade associations, and product certification organizations.

General Support

Numerous commenters supported updates to the standards, noting that such efforts enable the industry to use the latest innovations to provide high-quality, affordable manufactured homes. Many commenters specifically supported the changes related to accessible shower compartments and tankless water heaters. Other commenters applauded the express authorization of multi-dwelling unit manufactured homes. Commenters supported the revised exterior door requirements to facilitate open floor plans, moisture barriers, and higher moisture content of treated lumber in exterior additions.

One commenter expressed support for revising § 3280.403 to add the ISO/IEC 17065:2012 accrediting requirement for product certification of fenestration products and the requirement that windows and doors display their certification from an independent ISO/IEC 17065:2012 accredited product certification. Another commenter expressed support for the changes related to steeper roof pitch designs.

HUD Response: HUD thanks the public commenters for their support of these provisions. HUD agrees that by incorporating by reference updated construction standards, the rule will encourage the industry's use of the latest innovations and continue to support the construction of high-quality, affordable, manufactured homes.

Obligations Placed on Installers of Manufactured Homes

One commenter expressed concern about obligations the proposed rule would place on installers of manufactured homes. The commenter recommended that HUD set these requirements as part of factory production procedures, rather than installation procedures, because the rule places more obligations on manufacturers. The commenter offered this recommendation because manufacturers have more relevant expertise and greater control over the design and production process, as well as installers' inability to do a comprehensive evaluation of the construction.

Other commenters raised similar concerns related to the fire sprinkler system standards. These commenters noted that the installation and testing of fire sprinkler systems are typically done by licensed professionals specializing in such systems, not manufactured home installers. The commenters disagreed with HUD's decision to place responsibility on manufactured home

installers to test and certify the sprinkler system on site to ensure availability of adequate water supply. One commenter recommended that any proposed regulations regarding the installation of the fire sprinkler system be withdrawn from the rule, while the other commenter provided no suggested remedy.

HUD Response: HUD appreciates these comments. The testing and certification requirements imposed under § 3280.214(q) serve to verify that the minimum water supply pressure requirements needed to properly operate the fire sprinkler systems are met after the home is installed. Upon reconsideration, HUD has revised the final rule to require that this water supply pressure testing and certification be completed by a fire protection technician during the installation of the home. HUD selected this option to address the concerns raised by the commenters, as fire protection technicians will have the most relevant and specialized experience needed for testing and certifying the adequacy of water supply for fire sprinkler systems, compared to manufactured home installers. However, nothing in this rulemaking should be interpreted to change the requirement that home installation is the responsibility of the installer and, as applicable, home installations must meet HUD Model Manufactured Home Installation Standards (24 CFR part 3285) at a minimum and may also be required to satisfy State and local installation requirements with permits as may be required consistent with § 3286.409(c).

Fire sprinkler systems are not required by § 3280.214, but when a manufacturer incorporates a fire sprinkler system into the design and construction of a manufactured home, as an optional feature selected by the consumer, design approval agencies must review and approve plans to ensure that the system meets the technical requirements established by the MHCSS. In-plant inspection agencies must ensure that manufacturers follow designs and quality assurance procedures that result in compliance with the approved designs and to the standards when the standard is specific. Manufacturers are responsible for providing installation instructions for the fire sprinkler systems, including specific instructions for the inspection and testing of the system during or after the installation of the home. As the connection of the home to utilities is a matter of installation and in accordance with existing regulations at § 3285.904(b), only qualified personnel familiar with

local requirements are permitted to make utility site connections and conduct tests. Therefore, in this final rule, HUD is only requiring that the installer ensure that the water supply to a fire sprinkler system is verified by a fire protection technician to meet the minimum requirements described on the Fire Sprinkler System Certificate in the home (located next to the data plate).

Exterior Door Requirements

Several comments expressed concern that the entry and corridor width requirements in the proposed rule would be insufficient to facilitate entry by emergency medical services with a gurney stretcher. The commenters recommended that HUD require manufactured homes to have one 36-inch-wide entry door and 36-inch-wide corridors. They indicated that such a requirement would better comport with the International Building Code and the International Residential Code, as well as California State requirements.

One commenter noted that a requirement in the proposed rule that the doorway be 28 inches wide could leave a net clear opening width of only 26 inches after accounting for door stops, hinges, and door thickness. The commenter noted that this could be a problem because ambulance gurneys are generally 24 inches wide.

HUD Response: HUD's proposed rule included a requirement, which continues in this final rule, that one of the two exterior doors of a manufactured home provide a minimum of 32 inch wide by 74 inch high clear opening, which is an increase from the previously codified 28 inch wide requirement. Maintaining the minimum width of 32 inches for one external door addresses the concerns regarding effective emergency response raised by commenters by providing an increased width standard that more easily accommodates the ingress and egress of a standard 24 inch wide gurney while balancing HUD's statutory requirement to consider affordability when establishing Federal minimum standards for manufactured housing. These considerations of cost can, as it does now, result in requirements that may not follow other established building codes.

Door Seal Requirements

Commenters noted that HUD proposed the removal of the reference to door seals in § 3280.105(b)(2). Commenters noted the importance of door seals and that, because the reference had been removed, manufacturers would no longer be

allowed to account for the reduction of the opening that door seals make up. The commenters recommended that door seals be allowed to encroach on opening space and the addition of following sentence: “However, the door stops are permitted to reduce the opening, either vertically or horizontally, by a maximum of one inch.”

HUD Response: HUD proposed removing the mention of door seals in § 3280.105(b)(2). Commenters provided feedback on the proposal, explaining that door seals play a vital role in reducing the infiltration of sound, light, drafts, and moisture in manufactured homes. The final rule added language in § 3280.105(b)(2) to specify that at least one of the exterior egress doors of a manufactured home must provide a minimum of 32 inch wide by 74 inch high clear opening. However, this language allows manufactures to add door stops and door seals to exterior egress doors as long as one exterior egress door does not fall below the minimum of 32 inch wide by 74 inch high clear opening.

HUD is making this change for two reasons. First, the MHCC recommended that at least one egress door have a minimum 32-inch clear width opening for the purpose of improving accessibility. Second, many manufactured housing units subject to the MHCSS may be provided to entities that administer programs or activities that receive Federal financial assistance from HUD. When this is the case, those entities would be subject to section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and HUD’s implementing regulations at 24 CFR part 8, including the requirements at 24 CFR 8.22 that address accessibility in new construction. Similarly, if manufactured housing units are provided to a State or local government for a program or activity of a State or local government, the housing would be covered by Title II of the Americans with Disabilities Act (42 U.S.C. 12131–12134) and its implementing regulations at 28 CFR part 35, including the requirements at 28 CFR 35.151(c)(3) that address accessibility in new construction. To facilitate compliance by these entities with these requirements, HUD is requiring that manufacturers produce manufactured housing units that meet the accessibility standards provided in 24 CFR part 8 and/or 28 CFR 35.151, as applicable. The Uniform Federal Accessibility Standards (UFAS) (see 24 CFR 8.32) or the 2010 ADA Standards for Accessible Design with the Deeming Notice, 79 FR 29671 (May 23, 2014), are currently used for compliance with

section 504. The 2010 ADA Standards for Accessible Design are used for compliance with the ADA. Both standards prohibit doorways below 32 inches clear width. See UFAS 3.13.5 and 2010 ADA Standards 404.2.3. HUD notes that the section 504 and ADA requirements are not applicable to any individual or buyer that obtains Federal Housing Administration financing when purchasing a manufactured housing unit, if the unit is not otherwise covered by section 504 or the ADA.

Clarity on Fire Sprinkler Requirements

One commenter found § 3280.214 of the proposed rule unclear about the circumstances in which fire sprinklers are required and read the proposed rule as omitting fire sprinkler requirements for what it referred to as multi-family manufactured homes. The commenter urged HUD to mandate fire sprinklers.

HUD Response: The final rule does not require the installation of fire sprinkler systems in manufactured homes. Multi-dwelling unit manufactured homes are single family structures and should not be referred to as multifamily dwellings. The final rule only establishes minimum requirements for the design and installation of a fire sprinkler system if a manufacturer chooses to install one as an optional feature selected by the consumer, or to meet State or local mandates for fire sprinkler systems in new single family homes. These minimum requirements are intended to create uniformity in manufactured home construction. HUD has no present reason to consider a mandatory fire sprinkler standard unless it is recommended by the MHCC to the Secretary.

Necessity of Fire Sprinkler Standard

Several commenters raised concerns about the necessity of the fire sprinkler standard in the proposed rule. These commenters stated that the NFPA 13D is an adequate private-sector voluntary sprinkler standard for manufactured homes and rejected the need for HUD standards. They also raised several unique reasons for their disagreement with the proposed rule.

One commenter stated that manufactured housing units have additional fire protective features beyond what is provided in industrialized or site-built housing. As examples, the commenter referred to requirements related to limited combustible material around the cooking range, which it noted was the number one source of home fires, as well as the better flame-spread limitations in manufactured homes, which reduce the need for fire sprinkler

requirements. For example, the compartments for the water heater and furnace must have a flame-spread rating no greater than 25 and manufactured housing requires two exterior doors. The commenter also noted that ceiling finishes in manufactured homes must have a flame-spread rating equal to or less than 75, as compared to 200 or less in conventional homes.

HUD Response: HUD appreciates these comments and agrees that fire safety and prevention considerations are crucial in the design and construction of manufactured homes. The existing fire safety standards in the MHCSS have contributed significantly to manufactured homes being safer and more fire-resistant than the mobile homes built prior to the MHCSS. When examining this issue, HUD must also consider the balance between safety and affordability when establishing Federal standards and at this time defers to consumer choices to determine the necessity for installing fire sprinkler systems in residential homes. HUD believes that currently consumers have the right to choose fire sprinklers for their protection of life and property, but also recognizes the need to balance considerations of cost and effectiveness when preserving affordability for manufactured housing consumers. The final rule does not require fire sprinkler systems in manufactured homes but establishes standards when a design incorporates them. The standards under § 3280.214 are based on the NFPA 13D for the design and construction, and in-plant water pressure testing. The provisions for testing the water supply at the site and any other installation-related requirements for fire sprinkler systems are minimum requirements that must be addressed in manufacturer installation instructions. However, the installation will be inspected under requirements of 24 CFR parts 3285 and 3286, and the water supply sufficiency shall be certified by a fire protection technician. The Manufactured Home Construction and Safety Standards, often referred to as MHCSS, provides a minimum requirement that can support manufacturers, promote uniformity in manufactured housing construction, and preserve affordability, particularly when manufactured homes are constructed for States or jurisdictions that require fire sprinkler systems.

Authority To Impose a Fire Sprinkler Standard

One commenter questioned the necessity of the standard and whether HUD exceeds the statutory authority for the proposed rule’s standards related to the installation of fire sprinkler systems.

The commenter cited the “manufactured home safety” definition and stated HUD must determine, prior to the adoption of standards, there is the existence of “any unreasonable risk of death or injury to the occupant(s) of a manufactured home.” The commenter asserts that the absence of fire sprinklers has never been determined to be an unreasonable risk within the HUD fire safety standards. The commenter explained that HUD could not now purport to view fire sprinkler standards as necessary to “protect against any unreasonable risk of death or injury” given that the proposed rule declines to mandate fire sprinkler systems, but rather sets forth standards with which a sprinkler system, if installed, must comply.

The commenter also stated that a National Fire Protection Association (NFPA) report and associated update stated fire sprinklers are not necessary to prevent against “unreasonable risk of death or injury” and that manufactured homes built in compliance with HUD’s existing fire safety standards have lower incidence of fire and fire injuries, comparable fire death rates, and better contained fires than other comparable dwellings.

Given that fire sprinkler systems are not necessary to prevent “unreasonable risk of death or injury,” the commenter concluded, specific standards for optional fire sprinkler systems cannot be necessary either. It recommended that HUD remove the proposed standard from the final rule.

HUD Response: HUD appreciates the commenter’s thoughts and comment but does not agree with its conclusion or analysis. Congress directed HUD to develop and promulgate standards that reduce the number of personal injuries and deaths in manufactured homes, as well as improve the quality and durability of manufactured homes, by enacting the highest standards of protection. These standards must also be appropriate and reasonable, as explained by section 604(a)(1)(A)(i) through (iii) of the Manufactured Housing Improvement Act of 2000. Neither the assertion that this rule does not require the installation of fire sprinkler systems in all manufactured homes or a report that manufactured homes built in compliance with HUD’s existing fire safety standards have lower incidence of fire and fire injuries, comparable fire death rates, and better contained fires than other comparable dwellings, addresses the authority HUD has to establish standards in accordance with the consensus standards development process. Based upon MHCC recommendations, HUD has

determined the fire sprinkler system standards are essential for uniformity and enforcement, as well as reasonable specifications that are consistent with approved home designs for the installation of a manufactured home to ensure proper siting and the joining of all sections of the home.

The Proposed Regulation Is Duplicative Because Existing Regulations Preempt State and Local Requirements for Sprinkler Systems

One commenter claimed that the proposed fire sprinkler standard recommendation by the MHCC was substantially based on the idea it was necessary to ensure the preemption of State and local fire sprinkler standards under 42 U.S.C. 5403(d). The commenter believed that State and local standards were already preempted without the need for the proposed standard.

The commenter called attention to the text of 42 U.S.C. 5403(d), which provides, in part, that Federal preemption “shall be broadly and liberally construed.” Prior HUD analysis, including a 1995 legal opinion, relied on a narrow construction of the “same aspect of performance test” to conclude that the Federal standards fail to preempt State and local sprinkler mandates because they lack specific requirements relating to sprinkler systems. The commenter claimed that the statutory text as modified by the “2000 reform law” invalidated HUD’s prior legal analyses and substantially enhanced the scope of Federal preemption under the Act. The commenter also attached a 1989 letter from a former Director of HUD Manufactured Housing and Construction Standards Division to the fire chief of Oklahoma City, which it cited for the proposition that HUD had previously and correctly determined that local standards were preempted under the less rigorous preemption language of the original 1974 Act.

The commenter went on to state that under a “broad and liberal” construction of Federal preemption in the Act of the “same aspect of performance” test, preemption analysis should focus on the Federal objective to be achieved and the Federal purposes of the Act. The commenter explained the result of this test is that existing HUD standards preempt State and local laws and do not allow additional or different equipment or measures required by “a state or locality.” The commenter goes on to conclude that existing regulations already meet the purpose of preventing “unreasonable risk of death or injury” and so there is already no room for State

and localities to require additional measures. Rather, such measures would only unnecessarily increase the cost of manufactured homes.

HUD Response: HUD acknowledges and appreciates the commenters concerns. HUD’s existing regulations regarding fire safety standards do not address the requirement or the standards of fire sprinklers. The current regulations do not prohibit State and local jurisdictions from promulgating their own fire sprinkler standards. Although fire sprinklers are voluntary, should they be incorporated into the manufacturer’s design of a manufactured home, HUD’s Construction and Safety Standards as promulgated through this Final Rule, will preempt State and local requirements applicable to the same aspects of construction pursuant to section 604(d) of the Housing and Community Development Act of 1974, as amended by the Manufactured Housing Improvement Act of 2000, and 24 CFR 3282.11(a), just as any other standard.

Potential Imposition of Mandatory Fire Sprinkler Standards

One commenter suggested that the fire sprinkler standards in the proposed rule will likely increase the probability that a high-cost sprinkler system will be required in all manufactured homes. The commenter asserts that the proposed standards are characterized as regulatory “requirements” and that, when triggered, would subject the performance of any sprinkler system to Subpart I procedures and enforcement for the life of the home, which would impose all the corresponding investigation, documentation, and notice and recall requirements. The commenter concluded that the fire sprinkler standards should be eliminated from the final rule.

HUD Response: As noted earlier, the Manufactured Housing Improvement Act of 2000 established the MHCC and requires the establishment of construction and safety standards in accordance with the consensus standards development process. Under this Act, all proposed changes to the MHCSS must go through an MHCC-led consensus process to allow for thorough review and evaluation of proposed changes. Generally, proposed changes to HUD standards must be submitted and reviewed for recommendation to the Secretary before HUD can consider or implement changes to the MHCSS by notice and comment rulemaking. HUD has no present basis and has not received a recommendation from the MHCC to mandate fire sprinkler systems

in all manufactured homes. Therefore no mandate by HUD is being proposed.

Under the final rule, HUD fire sprinkler design and construction standards preempt State and local regulations when manufacturers construct a home designed with a fire sprinkler system. When a manufacturer produces a unit with a fire sprinkler system, Subpart I enforcement of the MHCSS will be implemented as applicable.

Federal Fire Sprinkler Standards Could Lead to State Imposed Mandates

Several commenters stated that the provisions addressing fire sprinkler systems in the proposed rule would encourage State and local government to step in and require sprinkler systems in manufactured homes or otherwise increase regulation. A commenter noted that this would reverse the current trend in which jurisdictions focus on the model International Residential Code.

One commenter articulated concern that the voluntary language of the fire sprinkler requirements, which provides standards only when a manufacturer installs a system but does not require a manufacturer to do so, would weaken the rule of preemption and lead other entities to believe they may enforce this voluntary requirement in manufactured homes. The commenter explained that, currently, a fire suppression systems requirement by a local authority applies to all residential dwellings and is non-discriminatory. The commenter further explained that, under current Pennsylvania law, fire suppression systems are not required in one or two-family dwellings but are required in multi-family dwellings.

Another commenter asserted that HUD holds the position that State and localities can require fire sprinkler systems although it did not believe that the MHCSS lacked preemptive effect. While the commenter disagreed with the need for a requirement for fire sprinkler systems, the commenter explained that, given the proposed standard, HUD should now take the position that its fire sprinkler standards preempt State and local requirements so that manufacturers do not have to adhere to a patchwork of State and local requirements.

Several commenters echoed the recommendation that HUD explicitly adopt the position that its fire sprinkler standard, as laid out in the proposed rule, will preempt current or future States or local design, testing, or installment mandates. One commenter specifically advised that HUD add a statement to § 3280.214 to reflect preemption of State and local

requirements as stated in § 3282.11. Another commenter recommended that HUD adopt a stance that would permit State and local regulations, but only insofar as they would require the implementation of HUD's otherwise-voluntary fire sprinkler system. The commenter explained that this would allow for localized fire sprinkler requirements without creating disparate jurisdiction-by-jurisdiction sprinkler design requirements. Other commenters concerned about the standard's preemptive effect instead recommended that HUD remove the proposed voluntary fire sprinkler standard and any other regulations regarding the installation of fire sprinkler systems.

HUD Response: HUD thanks the public for these comments. The amendments to MHCSS in this final rule would preempt State and local requirements to the extent that State and local fire sprinkler requirements conflict with Federal standards pursuant to 24 CFR 3282.11(a).

HUD also notes that it must consider the balance between safety and affordability when establishing Federal standards and defers to consumer choices to determine the necessity for installing fire sprinkler systems in residential homes. Fire sprinkler systems are not federally mandated for site-built residential homes, as even the national life safety code, NFPA 101, is only enforceable if a municipality has implemented it. HUD asserts that consumers have the right to choose fire sprinklers for the protection of their life and property, but also recognizes the need to balance considerations of cost and effectiveness when preserving affordability.

HUD understands the commenters' concern. However, there is no indication to HUD that the rule would encourage State and local government to step in and require sprinkler systems in manufactured homes or otherwise increase regulation. Consequently, this issue is too speculative for HUD to meaningfully consider in the final rule.

A Voluntary Fire Sprinkler System Insufficiently Protects Residents

One commenter expressed concerns that the proposed fire sprinkler system would fail to protect residents of manufactured homes from personal injuries and protect the public from unreasonable risk, as is required by statute and recommended that HUD require fire sprinkler systems in all new manufactured homes. The commenter believed that home fires present an unreasonable risk of death or injury in manufactured homes and that fire sprinklers are the most effective means

to control such risk, especially in multiunit manufactured housing. The commenter cited the prevalence of fire deaths and injuries in the home and explained that most such casualties occurred in one-and-two family dwellings, including manufactured homes. It stated that, although injury rates from home fires were lower in manufactured homes, death rates were higher. The commenter expressed particular concern for elderly individuals, who have higher injury and death rates from home fires, in part because of factors like decreased mobility and other impairments. The commenter noted that demographic trends suggest that more older individuals will occupy manufactured homes in the United States over time. The commenter referenced the growing elderly population combined with the growing percentage of the population living in manufactured homes. The commenter also noted that manufactured housing is more prevalent in rural areas and in the South, areas with higher fire fatality rates.

The commenter believed these factors to create an unreasonable risk of death or injury and stated that automatic fire sprinklers would be an effective means of controlling that risk. The commenter cited an analysis of home fire data which found that in fires where automatic fire sprinklers were present, civilian deaths were 89 percent lower and injuries were 27 percent lower. It further suggested, based on the 53 percent reduction in medical-related costs of civilian injuries in fires where automatic fire sprinklers were present, that perhaps injuries were also less severe.

The commenter also noted that automatic fire sprinklers are a requirement for one-and-two family occupancies in the 2006 edition of NFPA 5000 Building and Construction Code, as well as the 2009 International Residential Code (IRC). The commenter noted that modern homes burn hotter and faster, due to lightweight construction practices, open floor plans, and synthetic furnishings, which leave occupants with as little as two minutes to escape. Fire sprinklers can control the fire until firefighters arrive and give occupants more time to escape.

Based on this, the commenter recommended that HUD require automatic fire sprinklers in all manufactured homes to provide them with the equivalent level of safety as site-built homes. The commenter also recommended that HUD to take the opportunity to ensure manufactured homes provide a higher level of safety than site-built homes and noted that 42

U.S.C. 5401 *et seq.* contains no requirement of parity between the two kinds of housing.

To provide an adequate level of fire safety for multi-unit manufactured homes, the commenter referred HUD to section R302.2 of the 2021 edition IRC. The commenter advised that, to maintain the applicability of NFPA 13D, which is limited in scope to one-and-two family dwellings, the separation requirements of section R302.2 of the 2021 edition IRC must be applied between every two units in multi-unit manufactured homes. It explained that this would result in multi-unit manufactured homes being divided into two-family dwellings and it would then further be advisable to apply the requirements of R302.3 of the IRC for separation between individual units.

In the alternative to requiring automatic fire sprinklers in all new manufactured housing, the commenter supported the incorporation of NFPA 13D by reference for those homes in which sprinklers are installed. The commenter explained the history of NFPA 13D and stated that it believed NFPA provides the appropriate balance between safety and affordability. The commenter believed consumers should have the right to choose fire sprinklers and be confident that they were installed in accordance with the most up-to-date standards.

HUD Response: HUD acknowledges the comments but disagrees that the proposed fire sprinkler system standards would fail to protect residents from personal injuries and protect the public from unreasonable risk. While the final rule does not require the installation of fire sprinkler systems in all manufactured homes, the final rule does establish minimum requirements for the design and installation of a fire sprinkler system if a manufacturer produces a design that contains the optional feature. These minimum requirements are intended to create uniformity.

HUD agrees that fire sprinkler systems can be a very effective means for controlling risk of fire-related injuries and providing additional protection for occupants. HUD agrees that the NFPA also considers the balance between safety and affordability, and that consumers have the right to choose fire sprinklers for their protection of life and property, and to be confident in its installation and integrity. HUD also recognizes the need to balance considerations of cost and effectiveness when preserving affordability for manufactured housing consumers. HUD also acknowledges that manufactured homes built in compliance with HUD's

existing fire safety standards are significantly safer and more fire-resistant than the mobile homes built prior to the MHCSS. The final rule incorporates NFPA 13D by reference for § 3280.214(b), (e) and (o), including the exception for multi-dwelling unit manufactured home construction (24 CFR 3280.215(b)(3)), based on the 2021 edition IRC section R302.3 that allows for a fire resistance rating of ½ hour to be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with § 3280.214.

Furthermore, HUD is required by the Manufactured Housing Improvement Act of 2000 to use a consensus process for thorough review and evaluation of proposed changes. Generally, proposed changes to HUD standards must be submitted and reviewed for recommendation to the Secretary before HUD can consider or implement changes to the MHCSS by notice and comment rulemaking. Absent an authority to act or emergency, HUD may not consider or impose a mandatory fire sprinkler standard at this time because the MHCC has not provided a recommendation to change the standards.

Clarifying the Language of § 3280.214

One commenter suggested a revision to the language of § 3280.214, which it believed would support State and local jurisdictions in its safety efforts. Specifically, in § 3280.214, the commenter recommended that paragraph (a)(1) read “. . . when a manufacturer installs a fire sprinkler system as an optional feature or to meet state or local laws and regulations, this section . . .” The commenter stated that this change was advisable to broadly preempt State or local requirements for manufactured homes.

HUD Response: HUD agrees with the commenter and has amended § 3280.214(a)(1).

Standards for Fire Sprinkler System Piping in § 3280.214(p)

Two commenters expressed concern about the proposed rule at § 3280.214(p) which subjects the fire sprinkler system piping to the same test as the water distribution systems in § 3280.612(a). The commenters explained that the proposed rule requires the test to be conducted with air or water at 100 PSI for 15 minutes, whereas the NFPA 13D, which is identified as a reference standard, requires a hydrostatic (water) test in order to pressurize the system at 200 PSI for two hours. One commenter recommended that all proposed regulations regarding the installation of

the fire sprinkler systems be withdrawn from the docket. The other commenter recommended that § 3280.214(p) be aligned with the reference standard to avoid confusion.

HUD Response: HUD acknowledges these comments. The water supply testing provisions proposed by HUD were determined to accommodate more types of piping materials, such as nonmetallic pipe and tubing, such as CPVC and PEX. Some materials used for home sprinkler systems are not suitable for the 100 PSI or higher testing requirements cited by NFPA for metallic pipes, and HUD must consider both safety and affordability considerations for the design and construction of manufactured homes. Sprinkler piping must comply with all requirements for cold-water distribution piping.

Reduced Fire-Resistance Rating for Buildings With Automatic Sprinkler Systems

Some commenters noted that the proposed language regarding fire separation requirements between two dwelling units was based on language from the IRC but was missing an important exception. The commenters stated that the rule was missing the 2021 IRC R302.3 exception 1 for homes that have fire sprinklers installed.

A commenter specifically recommended that HUD incorporate 2021 IRC R302.3 exception 1 as the third exception of § 3280.215(b). The language proposed by the commenter would read as follows: “A fire resistance rating of ½ hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 3280.14”.

HUD Response: HUD agrees with the comment's suggested change and has added this exception to § 3280.215(b) in the final rule. The exception provides an allowance for multi-dwelling unit manufactured homes equipped with automatic fire sprinklers in each dwelling unit, the fire resistance rating of walls and floors may be reduced from 1 hour fire resistance rating to ½ hour fire resistance rating.

Roof Resistance to Fire

One commenter recommended that HUD adopt a minimum requirement for the fire resistance of roofing materials to provide a Class A fire rating as determined by either ASTM E108 or UL 790.

HUD Response: HUD acknowledges this comment and recommends that the commenter propose a standard to be reviewed by the MHCC. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

Generally, absent authority to act or address an emergency, HUD addresses or incorporates changes after proposed changes are reviewed by the MHCC.

The Proposed Rule's Three-Unit Limitation on Multi-Dwelling Unit Manufactured Homes

While noting that they supported the regulation's express authorization of multi-dwelling unit manufactured homes, some commenters disagreed with the three-unit limitation proposed by HUD. These commenters provide several bases for their position.

Initially, one commenter stated that the limitation exceeded HUD's statutory authority under 42 U.S.C. 5402(6), since 42 U.S.C. 5402, which defines "manufactured home," does not contain a limitation to the number of single-family homes that can be joined into a multi-dwelling unit. The commenter also stated that HUD and MHCC appear to recognize that the restriction has no basis in statutory authority by pointing to the text of the proposed rule which states that "MHCC based its determination on ensuring consistency with a similar state code" and to contemporaneous MHCC documents which, the commenter claimed, show that MHCC based its determination on the subcommittee members' belief that the limitation would keep HUD standards consistent with the IRC, while a higher limit or no limit would require compliance with the International Building Code (IBC). The commenter stated that reliance on or reference to State building codes or non-manufactured housing model codes as the basis for the limitation lack any legitimate basis for the limit since (1) manufactured housing is not subject to or regulated by any State code or model code unless incorporated by the MHCSS by reference, which is true for neither IRC nor IBC and (2) neither the IBC nor the IRC is specific to manufactured housing or its associated statutory purposes, such as affordability.

The commenter also raised constitutional equal protection concerns related to narrow definitions of "family" or "single family," noting that manufacturers and retailers could be subject to discrimination claims and potential liability for refusing to sale or lease a home based on the status of the consumer or its expected use. Finally, the commenter stated that the unit restriction exceeded Federal authority because once a manufactured home is sold and installed, its use becomes a matter for State and local authority through mechanisms like zoning and use permits.

A second commenter similarly expressed concern that the "size requirements" were necessary because localities already set standards in this area and that HUD's standards would only serve to limit availability of products to consumers. This commenter also recommended that HUD support "multi-level, multi-unit dwellings," in light of land-use limitations faced in many communities. The commenter explained that this support would enable increased housing availability, affordability, and healthy community growth. A third commenter recommended that HUD raise or eliminate the 3-unit multifamily cap noting that any unit cap must have a valid policy basis and suggested that the current proposed rule lacked such a basis as to the three-unit restriction.

HUD Response: HUD appreciates the comments but disagrees that HUD lacks the authority to limit the number of units that can be joined to form a multi-dwelling unit manufactured home. Under section 604(b) of the Manufactured Housing Improvement Act of 2000, HUD has broad authority to establish, after recommendation from the MHCC, construction and safety standards and model installation standards for manufactured homes. Limiting the number of single-family units that may be installed together and still be considered a manufactured home for Federal purposes is an exercise of those various authorities. Consistent with the requirements of the Act, HUD, in consultation with the MHCC, determined that the limit on the number of units is reasonable and practical and can reduce potential safety or unforeseen logistical challenges. 42 U.S.C. 5403(a)(1)(A)(i). HUD's statutory obligation is to protect residents of manufactured homes from personal injuries, insurance costs, and property damages. HUD agrees that zoning regulations and the land use planning of local jurisdictions could also impact the installation of multi-dwelling unit manufactured home but does not agree that HUD's standards will have an adverse impact on product availability.

In response to these comments along with other considerations detailed below, HUD has increased the limit to four (4) units for the definition of multi-dwelling unit manufactured homes. HUD considered the criteria established by the Federal Housing Administration, which insures multi-dwelling unit manufactured homes of one to a maximum of four units under HUD's single family program. Further, the maximum number of four is commensurate with maximum limits established for attached units in

international code requirements. These considerations, as well as ensuring uniformity between HUD programs, led HUD to conclude that four units was appropriate, at this time, for the definition of multi-dwelling unit manufactured homes.

HUD acknowledges certain commenters suggested eliminating the limit on units entirely. However, such a proposal was neither recommended by the MHCC nor presented in the proposed rule for public review and comment. The absence of these actions prevents HUD from considering the recommendation until the MHCC completes a consensus driven review and provides a recommendation to the Secretary. HUD requests that the commenters propose this code change to the MHCC and provide supporting rationale and justifications with the proposal. The public may submit proposed revisions to the MHCSS via the internet at mhcc.homeinnovation.com.

HUD would like to clearly state the distinct terminology and nomenclature that multi-dwelling unit manufactured homes are single family structures and are not properly or technically classified as "multifamily" dwellings which are traditionally five or more dwelling units and are considered commercial property.

Use of the ASCE 7-05 To Recalculate Wind Speed References

Numerous comments stated that ASCE 7-05 was not an appropriate standard for use in the proposed wind design standard and recommended that HUD use ASCE 7-10. Many of these commenters stated that the proposed wind speeds used by ASCE 7-05 result in more onerous requirements for a wind zone (WZ) II house than would exist for a WZ III house designed under current standards. As examples, commenters noted that a WZ II house on the Gulf Coast of Alabama would, under the proposed standard, have the same design wind speed as a house located in the Florida Keys using the newer editions of ASCE. Another commenter gave the example that a WZ II house in Magnolia Springs, Alabama would need to be constructed in the same way as one in Marathon, Florida. Further, commenters noted the proposed rule uses wind speeds that exceed the highest mapped wind speeds under the more current editions of ASCE. Similarly, one commenter noted that for WZ II, no location in the contiguous United States utilizing ASCE 7-10 or other newer version has a wind speed equaling 194 miles per hour. The commenter also noted that use of

ASCE-7-05 would require design to Vult=181mph for WZ II and Vult=194mph for WZ III.

A number of commenters expressed concern about the increased costs that would be imposed on the industry as a result of the new wind standards. Several commenters noted that the proposed rule would increase costs in other areas including ESR-1539 “increased/stronger metal strapping, calculated staples,” NDS 2015 “longer lags to account for tip, more SYP lumber due to reduced design properties,” and AISC 360-10 “increased/stronger uplift straps.” These commenters contrasted these costs, which they referred to as “acceptable and understandable,” to the use of the ASCE 7-05 standard which they suggested were both unacceptable and incomprehensible.

Several commenters stated that ASCE 7-05 is a flawed measure because it excludes hurricane prone regions from the Exposure D definition, a decision that some commenters note has been found to be inappropriate. Commenters noted that if ASCE 7-05 is adopted, other portions of the 24 CFR part 3280 will need to be revised in light of the change in the Exposure D definition.

One commenter noted that the language in the proposed rule stating that “conversions could not be used alone as they do not factor in changes ASCE 7 made throughout the years to determine the wind pressures for building design that are now based on wind speed” as lacking reason. The commenter stated the ASCE 7-10 introduced a factor of 0.6 in the load combination for wind, thereby reducing the wind pressure from ASCE 7-05, and criticized HUD’s decision to apply its own factor without clear basis to arrive at the figures for WZ II and WZ III.

Another commenter questioned HUD’s comparison of ASCE 7-88 and ASCE 7-05 and noted that if velocities of 120 miles per hour (mph) and 130 mph are used, the result is an 18 percent increase in ASCE 7-05 over ASCE 7-88. It contrasted this to velocities of 140 mph and 150 mph, which would lead to a 61 percent increase. The commenter recommended HUD revise the proposed 140 and 150 wind speeds to 120 and 130 miles per hour as it had done initially.

Another commenter also expressed concern surrounding HUD’s wind pressure standards. The commenter noted that when comparing the pressures in ASCE 7-88 to the table pressures, many of the ASCE 7-88 table pressures are lower but some are higher. The commenter encouraged new regulations to continue “this principle” given that the “intent of engineered

design is to be comparable but designed in a more precise manner.” While not entirely clear, this commenter appeared to recommend that lower wind pressures be used in the NPR.

Some commenters stated that the revised standard would make construction of roof pitches over 20 degrees more expensive, or would even be impossible, and would make manufactured homes uncompetitive. One commenter explained that the standard was flawed because it applied the loads without regard to exposure and that use of the ASCE 7-10 standard would enable roof pitches over 20 degrees to be built.

Other commenters considered ASCE 7-05 flawed because it relied on wind speed criteria that are obsolete such as ASCE 7-05’s use of “stress-level” wind speeds as opposed to “strength-level” wind speeds. The commenters stated that this standard could cause confusion among consumers regarding the wind safety of manufactured homes and may dissuade them from purchasing such homes. These commenters instead recommended use of a newer version of ASCE 7 and revisions to the methodology underlying the adopted wind speeds. Some commenters specifically recommended use of the ASCE 7-10. One commenter recommended use of ASCE 7-22 and advised that the methodology for the adopted wind speeds, as well as the WZ II and WZ III wind speeds, be revised accordingly.

HUD Response: HUD appreciates the comments received. HUD is not updating the reference standard for wind load design from ASCE 7-88 to ASCE 7-05 after considering the public comments. Instead, HUD is returning this item to the MHCC for reconsideration. It is HUD’s conclusion that updating the ASCE reference standard is not appropriate without updating several sections in the MHCSS, including the values in the Table of Design Wind Pressures in § 3280.305(c)(ii)(B), the Wind Speed Map and geographic boundaries identified in § 3280.305(c)(2) and (4), and references to Exposure D in § 3280.5(g). HUD recommends that the MHCC reconsider updating both the table and the impacted reference to ensure correlation for same edition of ASCE 7.

In making this recommendation, it is vitally important to provide the background and origin of HUD’s current standard regarding wind provisions. In the months following Hurricane Andrew, HUD proposed the rule to replace the wind load provisions of the MHCSS. That proposed rule, which was

based on a refined version of ASCE 7-88, formed the basis of the current HUD standard. In the proposed rule, the design wind pressures were based on the formation of three wind zones: Zone I with wind speeds of 80mph or less, Zone II with wind speed from 81 to 100 mph, and Zone III with wind speed of 101 to 110 mph. These three wind zones are separated by zone boundaries corresponding approximately to the 80 mph and 100 mph isotaches along the Atlantic and Gulf Coasts. The States of Hawaii and coastal portions of Alaska are designated as Zone III.

Because ASCE 7-88 was used as the basis to develop HUD’s current standards regarding wind provisions in § 3280.305, referencing ASCE 7-88 for determining design wind loads in §§ 3280.5(f), 3280.304(b), and 3280.305(c) result in approximately identical or close results as those shown in HUD’s Table of Design Wind Pressures for manufactured homes in almost all U.S. locations. This consistency supports the option of using either ASCE 7-88 or HUD’s Table of Design Wind Pressures specified in § 3280.305 for wind loads in high wind areas (Zones II and Zone III). This consistency, however, does not exist for ASCE 7-05 or ASCE 7-10.

Although in general the equation for obtaining design wind pressure in ASCE 7-88 and all later editions can be expressed as the square of basic wind speed, multiplied by a couple of coefficients that represent different factors contributing to design wind pressure yet independent from basic wind speed, the design philosophy and methodology underlying those factors and how they interact with one another and the basic wind speed and the wind maps, have evolved dramatically since ASCE 7-88. First, the definition of basic wind speed has changed from being based on “fastest mile” wind speed measurements in ASCE 7-88 to being based on the “3-second gust” wind speed measurements in ASCE 7-05 and later editions. Second, the exposure velocity pressure coefficient, which reflects change in wind speed with height and terrain roughness, the topographic factor, which accounts for wind speed-up over hills and escarpments, and the directionality factor were added in ASCE 7-05.

Most importantly, the wind maps have changed dramatically since the original 1993 rulemaking and have been completely redrawn in more recent editions of ASCE 7. More recent maps in ASCE 7-05 show high-wind zones extending much farther inland than those shown on the 1988 map and contour lines also have changed, which

would significantly affect basic wind speeds used for calculations. The basic wind speed determined by using ASCE 7–05 can produce a very different result than the calculation based upon HUD’s standard for the same location. In addition, in response to the public comments recommending ASCE 7–10 instead of ASCE 7–05, HUD notes that ASCE 7–10 included another major revision to ASCE 7–05 that needs to be considered by the MHCC. ASCE 7–10 no longer includes an importance factor and introduces risk categories. Instead of having one map as in ASCE 7–05, ASCE 7–10 introduces three new wind speed maps that correspond to each risk category. The ASCE 7–10 maps were transitioned to reflect the use of the different risk categories and alternate load and resistance design methodologies (allowable stress design instead vs. load and resistance factor design). Furthermore, ASCE 7–10 reintroduced Exposure D for water surfaces in hurricane-prone regions, including a new wind-borne debris region, along with a new simplified procedures for buildings up to 160 feet in height, and new minimum wind loads for walls. These changes are very important and must be thoroughly considered by the MHCC before updating the HUD standards.

HUD recognizes that updating the basic wind speeds and certain isotach references for Wind Zone III in the State of Alaska and Guam, as originally proposed, will certainly lead to a mismatch of design wind pressures for many locations. These mismatches have been reported in several public comments. For HUD to update the reference standard to ASCE 7–05, or ASCE 7–10, or any other edition of ASCE 7 that has undergone major change(s) of wind map contour lines, revisions that are far too substantial to be incorporated between proposed to final rulemaking would need to be implemented. In addition, these changes, which include, but are not limited to, updating the zone maps in § 3280.305 must be reviewed through the consensus committee process for development and revision of HUD standards.

HUD agrees with the comment that the intent of engineered design is to be comparable but designed in a more precise manner. From an engineering design perspective, every revision of the ASCE 7 wind load provisions over time has been made to improve building design and address safety considerations. For instance, design wind loads have increased for locations where the probability of hurricanes have risen, yet decreased in circumstances

where scientific and engineering advancements, such as new technologies simulating and testing wind speeds, updated design methodologies, or breakthrough research findings, have improved the design of homes. HUD’s purpose for updating design standards is to revise standards to be more accurate and consider public safety. As such, updating the reference standard for design wind pressures for Exposure C from ASCE 7–88 to a more recent version without revising the Table of Design Wind Pressures would be in conflict with the general purpose of updating HUD’s standards.

Based on this assessment, HUD has determined that the proposed methodology, if applied to the wind zone map codified under § 3280.305, will result in significant cost impacts that have not yet been fully considered nor recommended by the MHCC. HUD is returning this recommendation to the consensus committee for further review and analysis and has removed the proposed changes from the final rule. ASCE 7–88 remains the codified reference standard and basis for design wind pressures and wind zones established for high wind areas.

Statutory Authority for the Increase in Wind Resistance Standards

One commenter opposed the proposed rule’s use of the ASCE 7–05 standard and “three-second gust” parameter to recalculate the wind speed references for manufactured homes in Wind Zones II and III on the grounds that HUD had exceeded their statutory authority in making the change. Specifically, the commenter stated that HUD had impermissibly relied on consistency with the design of other single-family structures in modifying its parameters. The commenter referenced the proposed rule’s statement that the three-second gust parameter “would keep manufactured housing on par with design of other single-family structures.” The commenter stated that HUD does not have authority that would allow HUD to base new or amended MHCSS standards on identity with or similarity to standards for other types of housing. The commenter also stated that HUD and MHCC had neglected their statutory duty by failing to, in recommending and proposing MHCSS standards, consider the cost of such standards. It cited to 42 U.S.C. 5403(e) for the proposition that MHCC and HUD must consider “the probable effect of such standard on the cost of the manufactured home to the public.”

Finally, the commenter suggested that, if an increase in design wind speed

would result from updating to the ASCE 7–05 standard, then HUD should specify which aspect of manufactured housing safety is unsatisfactory under the current standards and provide evidence to support that determination and show the cost impact of such changes on home purchase price.

HUD Response: HUD has a statutory obligation to establish construction and safety standards under section 604(a)(1)(A) of the Manufactured Housing Improvement Act of 2000. However, the current ASCE 7 standard will not be changed in the final rule and the recommendation is being returned to the MHCC for reconsideration. This is based upon HUD’s engineering assessment and public comments identifying issues with the proposed standard.

Resistance to Seismic Lateral Loads

One commenter noted that although the proposed rule went into detail of the provisions for wind load, it had left other lateral loads such as seismic loads largely unaddressed. The commenter recommended that provisions for seismic loads be incorporated into the document. It specifically suggested that such provisions be incorporated where the incorporation of seismic loads may control or otherwise modify the designs of the structure or component. As an example, the commenter pointed to § 3280.305 Windstorm and recommended that provisions for support and anchoring systems to resist other lateral loads be incorporated. The commenter provided further examples of § 3285.103 site suitability with design zone maps and recommended that it be updated to address seismic zone suitability check along with incorporation of seismic loading into part 3280. The commenter also recommended that the rule address anchorage for seismic loads.

HUD Response: HUD acknowledges this comment and recommends that the commenter submit a proposed code change supported by technical analysis and corresponding design zone maps, to be reviewed by the MHCC. The MHCC is a Federal advisory committee established and required by statute. All proposed changes to the MHCSS must follow the MHCC consensus process to comply with Federal regulations. Generally, proposed changes to HUD standards must be submitted and reviewed for recommendation to the Secretary before HUD can consider or implement changes to the MHCSS by notice and comment rulemaking. The public may submit proposed standards at mhcc.homeinnovation.com.

Snow Load Standards

One commenter noted that the basis of design snow loads has changed from average ground snow to maximum event snow in the 2022 IBC. The commenter also expressed concern about obsolete load standards in HUD regulations generally and recommended that HUD regulations be revised to be based on the latest versions of the load standards.

HUD Response: HUD acknowledges this comment and recommends that the commenter propose a code change to be reviewed by the MHCC. As mentioned in the previous response, generally, proposed changes to the MHCSS must be submitted and reviewed by the MHCC through the statutory consensus process for recommendation to the Secretary before HUD can consider changes for rulemaking. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

HUD Reference No. 8, Water Resistive Barrier

One commenter stated that the HUD Reference No. 8, Water Resistive Barrier, would increase the acquisition cost of manufactured homes without remedying the identified safety or construction deficiencies. The commenter recommended that the requirement be eliminated from the final rule. The commenter cited HUD's statement that a requirement would "align [the] manufactured housing code with site-built construction standards," and stated that HUD did not have the authority to mandate changes for this reason. Rather, the commenter saw HUD as having authority to propose and adopt standards only for the purposes of addressing specific, identified life, health, and safety and construction matters with the goal of protecting against unreasonable risk of accidents or any unreasonable risk of death or injury if such accidents occur.

HUD Response: HUD acknowledges these comments. HUD has a statutory obligation under section 604(a) of the Manufactured Housing Improvement Act of 2000 to establish and enforce construction and safety standards for manufactured homes. This includes authority to revise the MHCSS for consistency and improve efforts to protect the quality, durability, safety, and affordability of manufactured homes. Water resistive barriers play a critical role in protecting homes from moisture damage, improving energy efficiency, enhancing durability, and reducing the impacts of climate change by adding an additional layer of protection against water intrusion and rain and reducing air leakage.

Furthermore, insurance companies recognize the importance of water resistive barriers in mitigating water damage risks, which can result in potential insurance discounts or lower premiums that lead to cost savings for homeowners.

Recommended Revisions to Data Plate Disclosure Language of 24 CFR 3280.5(g)

Several commenters recommended that HUD update the data plate disclosure definition to accord with the definition of Exposure D as described in ASCE/SEI 7–05. They noted that ASCE/SEI 7–88 defines "Exposure D" differently than ASCE/SEI 7–05. Two of these commenters recommended that § 3280.5(g) be revised to provide: "This home has not been designed for the higher wind pressures and anchoring provisions required for locations with 600' of flat, unobstructed areas and water surfaces in Wind Zone I which extend out 5,000 feet or more unless the home and its anchoring foundation system have been designed for the increased requirements specified for Exposure D in ANSI/ASCE 7–05."

HUD Response: HUD appreciates the comments. HUD conducted an engineering assessment in response to public comments on the ASCE–7–05 wind standard. The assessment raised additional cost and efficacy concerns that must be examined by the MHCC. The return of the standard to the MHCC was necessary because, unlike the recommendations about the AAMA standard, where the MHCC provided HUD with recommendations for both the 2011 and 2017 standards, the MHCC's recommendation did not provide HUD an alternative reference standard. This absence deprives HUD of authority to enact a new standard, which must first be reviewed by the MHCC's further engineering assessment. The final rule will not update the ASCE standard to a version other than what is currently codified. If HUD revisits the matter in future rulemaking, commenters are encouraged to submit this feedback again.

HUD Reference No. 25, National Design Specification for Wood Construction

One comment stated that the HUD Reference No. 25, National Design Specification for Wood Construction, would increase the acquisition cost of manufactured homes without remedying identified safety or construction deficiencies. The commenter recommended that the requirement be eliminated from the final rule. The commenter cited HUD's statement that the requirement would

"increase home resiliency for consumers," and questioned whether HUD had the authority to mandate changes for this purpose under the 1974 Act. The commenter said that HUD especially lacked the authority for this change given that the standard would increase the purchase costs of homes and exclude potential purchasers without delivering specific identified and quantified benefits.

HUD Response: HUD acknowledges these comments. HUD has a statutory obligation to establish construction and safety standards under section 604(a)(1)(A) of the Manufactured Housing Improvement Act of 2000. This Act authorizes HUD to revise the MHCSS to protect the quality, durability, safety, and affordability of manufactured homes. The NDS is widely used by engineers, architects, builders, and other professionals involved in the design and construction of wood-framed buildings and structures. HUD is incorporating this reference standard to reflect the advancements in wood technology, industry best practices, and guidelines for wood construction that impact manufactured housing.

Purchase Price Impact Analyses

One commenter commented on the lack of purchase price impact analysis in the proposed rule. The commenter stated that, under section 604(3) of the 1974 Act, each reference standard change, addition, or modification must be accompanied by an analysis calculating the purchase price impact and weighing it against the alleged benefits of the proposed change. The commenter noted that HUD had provided no such analysis in table 2 or the preamble of the proposed rule.

The commenter stated HUD was obligated to consider the cost impact of any proposed changes or additions to the MHCSS standards within the context of the DOE "energy conservation" standards. The commenter stated that unnecessary HUD standards would compound with DOE standards to increase the cost of manufactured housing to the exclusion of lower and moderate-income potential purchasers. The commenter expressed concern that this decrease in affordability would be contrary to the 1974 Act and the priority of providing affordable housing. The commenter recommended that any standard in the proposed rule that lacked absent sufficient need and cost-benefit justification should be eliminated.

HUD Response: HUD acknowledges these comments. HUD considered the cost impacts from changes that stem

from this proposed rule in the regulatory impact analysis, which was published with the proposed rule. Specifically, the analysis states, “based on the overall weighted average per-unit cost increase, the average sales price of \$111,900 (Census of Manufactured Housing, August 2021), and the annual average production of 105,400, the decrease in homes purchased annually ranges from 77 to 130.” HUD sufficiently considered the purchase price impact and weighed it against the alleged benefits of the proposed change, as required by statute, when it drafted the proposed rule.

With respect to the rule issued by the United States Department of Energy, the standards are not under the purview of HUD and are not related to this rule. The information available to HUD, either through the adopted energy standards rule or provided by the commenter, does not suggest the energy rule will interact with the requirements of this rule. As such, including a cost impact analysis pertaining to DOE’s rulemaking would exceed the scope of this rule.

Lifecycle Cost Analyses

One commenter recommended that lifecycle cost analyses justifying any quality rules should include in their sensitivity analysis, a scenario with a discount rate equal to an index average MHCSS home chattel loan rate. The commenter noted that chattel loan rates can exceed OMB’s standard 3 percent and 7 percent real discount rates for cost-benefit analysis. The commenter explained that actual financing costs must be considered in the lifecycle cost analysis to guarantee real, all-in consumer savings are achieved.

HUD Response: HUD acknowledges these comments. Although the discount rate can be chosen based on the mortgage rate, the appropriate value would need to be the real interest rate, *i.e.*, the nominal rate minus inflation. OMB’s preferred 3% and 7% real discount rates provide a range that includes the commenter’s cited median nominal chattel loan rate of 7.8% minus inflation. Further, as discussed in the Consumer Financial Protection Bureau’s May 2021 report, “Manufactured Housing Finance: New Insights from the Home Mortgage Disclosure Act Data”, only 42 percent of manufactured housing loans in 2021 were chattel loans. Thus, using a discount rate based solely on chattel loan interest rates would be inappropriate.

Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Material (3280.4(l)(23))

Two commenters recommended that HUD incorporate the 2016 version of ASTM D4442 by reference because of the unspecified minor, non-technical changes and three unspecified semi-technical changes that were made from the 2007 to the 2016 version of the ASTM D4442. The commenter stated that the changes in the 2016 version will not have an impact on the manufactured housing industry but did not provide basis for this statement.

HUD Response: HUD acknowledges these comments. Incorporation of 2016 version of ASTM D4442 was neither recommended by the MHCC nor presented in the proposed rule for public review and comment. The absence of these actions prevents HUD from considering the recommendation until the MHCC completes a consensus driven review and provides a recommendation to the Secretary. HUD requests that the commenters propose this code change to the MHCC and provide a copy of the version proposed for incorporation with the proposal. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters, 2013 (3280.4(l)(24))

Several commenters recommended that HUD incorporate the ASTM D73438–08 or ASTM D7438–13 Standard Practice for Field Calibration and Application of Hand-Held Moisture Meters into HUD regulations in place of the ASTM D4444. The commenters stated that the change would enable greater accuracy in calibration and would better align with current industry practices.

HUD Response: HUD acknowledges these comments and requests that the commenters propose a MHCSS change that would incorporate an alternate standard so that it can be reviewed by the MHCC as part of the consensus process. As discussed earlier, the Manufactured Housing Improvement Act of 2000 requires that the MHCC consider changes to the MHCSS, issue recommendations to the Secretary, and that the Secretary implement, modify, or reject the standards. Under sections 604(b)(3) and (4) of the Manufactured Housing Improvement Act of 2000, the Secretary must make the proposed regulations or interpretative bulletins available for public comment upon receipt of a recommendation and prior

to enactment. In light of these requirements, HUD requests that copies of the exact version proposed for incorporation be included with the proposal. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

AAMA/WDMA/CSA 101/I.S.2/A440–17

Several commenters questioned the decision to adopt the 2017 version of AAMA/WDMA/CSA 101/I.S.2/A440 at § 3280.4(d)(6). The commenters noted that AAMA/WDMA/CSA 101/I.S.2/A440–08 and –11 are the most common standard certifications used today and there are no material differences between the 2011 and 2017 versions. They believed that AAMA/WDMA/CSA 101/I.S.2/A440–17 would make certification more difficult and would increase costs. They recommended that AAMA/WDMA/CSA 101/I.S.2/A440–11 be adopted at 3280.4(d)(6) instead of AAMA/WDMA/CSA 101/I.S.2/A440–17.

HUD Response: HUD appreciates the comments and has revisited the original recommendations made by the MHCC to HUD. In March 2016 (Log 140), the MHCC recommended that HUD adopt the 2011 version of AAMA/WDMA/CSA 101/I.S.2/A440 at § 3280.4(s)(6). However, in December 2017 (Log 201), the MHCC recommended HUD adopt the 2017 version, citing that the current reference standard was significantly outdated and should be referencing the latest edition. As mentioned by the public comments, there are no major differences between the 2011 and 2017 versions. Updated standards typically address necessary edits or weaknesses found in previous versions, leading to improved building performance and compliance in areas of quality, safety, and durability. Adopting the more recent standard into the MHCSS will not make certification more difficult or significantly increase costs. Most windows produced for construction purposes today are likely to already be built to meet current industry standards because of enforcement of window certifications by jurisdictions across the United States. HUD has incorporated the 2017 version in this final rule, which is not the most recent version as of 2024, to ensure that manufactured homes are constructed using more modern, relevant, and effective technologies and materials.

Reference to APA PSI–2009

One commenter recommended that HUD replace references to APA PSI–2009 with the most current version, which is NIST Voluntary Product Standard PS 1–19. The commenter

further recommended that, in place of listing a year or version, that the rule contain references to “the current version”.

HUD Response: HUD cannot enact these suggested changes unless the MHCC first considers the commenter’s suggestion in a consensus process and provides the Secretary with a recommendation. The Administrative Procedure Act also requires HUD to place the public on notice regarding standards upon which it may take future enforcement action and provide an opportunity for public review and comment. Considering these statutory limitations, HUD acknowledges these comments and requests that the commenters propose a code change to incorporate more recent versions to be reviewed by the MHCC. HUD requests that copies of the exact version proposed for incorporation be included with the proposal. The public may submit proposed standards via the internet at mhcc.homeinnovation.com. Please note that HUD is unable to broadly incorporate standards into Federal regulation without specificity.

Updates to Reference Standards Regarding Gas-Fired Appliances and Accessories

One commenter recommended that HUD update the reference standards for appliances and components used in the construction of manufactured homes to the most current editions. The commenter stated that mandating that appliances and components comply with outdated standards would burden manufacturers by mandating and would limit homeowners’ ability to have the most current products. The commenter recommended that HUD review the standards and update references to the most recent editions. Specifically, the commenter suggested incorporating following standards and codes for gas-fired appliances and accessories, including controls and tubing:

- CSA/ANSI LC 1–2019 • CSA 6.26–2019 as the standard for Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing in 3280.705(b) in order to update ANSI/IAS LC 1–1997.
- CSA/ANSI Z21.1–2019 • CSA 1.1–2019 as the standard for Household Cooking Gas Appliances in order to update ANSI Z21.1–2000.
- ANSI Z21.5.1–2017 • CSA 7.12–2017 as the standard for the Gas Clothes Dryers Volume 1, Type 1 Clothes Dryers in order to update ANSI Z21.51.1–1999, Gas Clothes Dryers Volume 1, Type 1 Clothes Dryers, with Addendum z21.5.1a–1999.
- CSA/ANSI Z21.10.1–2019 • CSA 4.1–2019, Gas Water Heaters Volume 1, Storage Water Heaters with Input Ratings of 75,000 BTU per Hour or Less in order to update

- ANSI Z21.10.1–1998, 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.
- CSA/ANSI Z21.10.3–2019 • CSA 4.3–2019 Gas-fired Water Heaters Volume 3, Storage Water Heaters with Input Ratings Above 75,000 BTU per Hour, Circulating and Instantaneous.
- ANSI Z21.15–2009(R2019) • CSA 9.1–2009(R2019), Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves in order to update ANSI Z21.15–1997.
- CSA/ANSI Z21.19–2019 • CSA 1.4–2019, Refrigerators Using Gas Fuel. The proposed rule would update ANSI Z21.19–1990, with Addendum ANSI Z21 19a–1992 and ANSI Z21 19b–1995.
- ANSI Z21.20–2014, Automatic Gas Ignitions Systems and Components in order to update ANSI Z21.20 with Addendum Z21.20a–2000.
- CSA/ANSI Z21.21–2019 • CSA 6.5–2019, Automatic Valves for Gas Appliances in order to update ANZI Z21.21–2000.
- CSA/ANSI Z21.23–2022 • CSA 6.6–2022 in order to update ANSI Z21.23–1993.
- CSA/ANSI Z21.24–2022 • CSA 6.10–2022, Connectors for Gas Appliances in order to update ANSI Z21.24–1997/CGA 6.10–M97, Connectors for Gas Appliances, and remove the reference to the Compressed Gas Association.
- ANSI Z21.40.1–1996(R2022) • CSA 2.91–1996(R2022), Gas Fired, Heat Activated Air Conditioning and Heat Pump Appliances in order to correct the title of this standard from ANSI Z21.40.1–1996/CGA 2.91–M96, Gas-Fired, Heat Activated Air Conditioning and Heat Pump Appliances, to remove the reference to the Compressed Gas Association.
- CSA/ANSI Z21.47–2021 • CSA 2.3–2021–2012, Gas Fired Central Furnaces in order to update ANSI Z21.47–1990 with Addendum Z21.4a–1990 and Z21.47b–1992, Gas-Fired Central Furnaces (Except Direct Vent System Central Furnaces).
- ANSI Z21.75–2016 • CSA 6.27–2016, Connectors for Outdoor Gas Appliances and Manufactured Homes.
- NFPA 54/ANSI Z223.1–2021, National Fuel Gas Code in order to update NFPA 54–2002, National Fuel Gas Code.
- NFPA 58–2020, Standard for the Storage and Handling of Liquefied Petroleum Gases in order to update NFPA 58, Liquefied Petroleum Gas Code, 2001 Edition.

The commenter recommended that CSA Group, which it referred to as the accredited standards development organization for many of the standards, be included in the resources. The commenter also recommended that HUD include the following address where copies of the standards could be obtained: CSA Group/8501 East Pleasant Valley Road/Independence, OH 44131/csagroup.org.

HUD Response: HUD acknowledges these comments and requests that the commenters propose a code change to incorporate more recent versions to be

reviewed by the MHCC, for the same reasons described previously addressing need for consensus review and public notification. HUD requests that copies of the exact version proposed for incorporation be included with the proposal. The public may submit proposed standards at mhcc.homeinnovation.com. HUD understands that many standards are accredited jointly by more than one rating agency, such as CSA Group, but this is commonly understood and the contact information for additional resources is readily available and accessible online. For purposes of organization of 3280.4 in the final rule, jointly issued ANSI/CSA standards are categorized under ANSI.

Updated Reference Standards Related to Plumbing

Several commenters requested revisions to the plumbing standards. One commenter advised HUD to consider updates to certain standards incorporated by reference in §§ 3280.4 and 3280.604. The commenter premised its recommendations on the importance of having plumbing product standards reflect technological advancements, product innovations, drinking water exposure to indirect additives in products and materials, and updates to testing methodologies. The comment included line edits to §§ 3280.4(j), 3280.4(dd), 3280.604(b), and 3280.604(c) that it advised HUD to revise the rule to better align it with current building codes, product standards, and building practices.

Another commenter requested removal of polybutylene pipe and fittings standards, which it stated had already been removed from model plumbing codes. The commenter noted that, to its knowledge, polybutylene pipe and fittings are not certified to ASTM standards and are not generally available for hot and cold-water distributions in the United States. The commenter proposed pages of line edits incorporating these recommendations into §§ 3280.604(b)(2) and 3280.4(dd).

The commenter also recommended changes to reflect current titles and editions of NSF, ASTM, and CISPI standards and current legal name of NSF International. It requested removal of the NSF/ANSI 24 Plumbing System Components for Recreation Vehicles given that it had been revised to remove manufactured homes and was thus no longer applicable.

Another commenter recommended line edits to §§ 3280.4(g), 3280.4(k), 3280.4(v), 3280.604(c), and 3280.604. Specifically, the commenter recommended that HUD remove from

the rule the following standards: ASSE/ANSI-1986, ASSE 1007-1986, ASSE 1025, IAPMO PS 2-89, IAPMO PS 4-90, IAPMO PS 5-84, IAPMO PS 9-84, IAPMO PS 14-89, and IAPMO PS 31-91. The commenter also recommended that HUD use the following updated standards: IAPMO Z124.5-2013e1 (R2018) instead of ANSI Z124.5-1997; and IAPMO Z124.7-2013 (R2018) instead of ANSI Z124.7-1997. The commenter also recommended that HUD use ASSE 1001-2021; ASME A112.1002-2020/ASSE 1002-2020/CSA B125.12-2020; ASSE 1008-2020; ASSE 1011-2017; ASSE 1014-2020; ASME A112.1016-2017/ASSE 1016-2017/CSA B125.16-17; ASSE 1017-2009 (R2014); ANSI/ASSE 1019-2011 (R2016); ASSE 1023-2020; ASSE 1051-2021; IAPMO PS 23-21; IAPMO TS 03 (R2022); and IAPMO TS 22-97e1 (R2020). In addition to the safety considerations and desire for most up-to-date testing methodologies and products noted by many of the commenters, this commenter explained that use of the most current versions of the standards would allow for incorporation of the results of efforts by the International Association of Plumbing and Mechanical Officials to harmonize product standards used for plumbing products in the US and Canada.

Another commenter specifically referenced parts 3280, 3282, 3285, and 3286, noting that they contained references to outdated standards. The commenter also noted that there were a number of missing newer standards from ASSE, ASTM and others for modern products, pipes, and fittings, specifically for new PEX fittings and modern piping materials like PERT and Polypropylene. The commenter attached a list of current standards with active versions years to which it directed HUD's attention.

HUD Response: HUD appreciates these comments and requests that the commenters submit these code changes to be reviewed by the MHCC, for the same reasons described previously. For reference standard version changes, HUD requests that copies of the exact version proposed for incorporation be included with the proposal. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

Updated NFPA Reference Standards

A commenter proposed the following additional updated reference standards related to NFPA. It noted the importance of updated standards to ensure that the requirements accommodate advancements in technology and practices and the most-up-to-date safety knowledge.

Accordingly, it recommended that HUD incorporate by reference the most recent version of various NFPA standards. Specifically, the commenter recommended incorporation by reference of the following NFPA standards:

- The 2022 edition of NFPA 13D in § 3280.214(b). Specifically, the commenter recommended use of table 7.5.6.3 instead of 7.5.5.3 in (e)(2), the use of tables 10.4.9.2(b) through (h) and table 10.4.9.2(c) in (o)(3)(i) and table 10.4.9.2(b) in (o)(3)(ii). The commenter believed that these changes would allow HUD to incorporate the most up-to-date standards related to freeze protection, sprinkler positioning, sprinklers in vacant structures, and use of well pumps as a water supply.
- The 2020 edition of NFPA 31 in §§ 3280.703(d) and 3280.707(f). It noted that changes from the 2011 to the 2020 version include listing criteria and fuel types for fuel burning appliances, acceptable piping and fitting materials, and updates to reference standards.
- The 2021 edition of the NFPA 54 in § 3280.703(d). It noted that changes between the two versions include pipe grounding and bonding, pipe fittings, venting requirements for chimneys, and appliance listing criteria.
- The 2023 edition of the NFPA 70 National Electrical Code which includes updates related to exterior emergency power disconnects for fire responders, network-connected life safety equipment, wireless power transfers of electric vehicles, and Class 4 fault-managed power. Relatedly, it noted that § 3280.807(c) refers users to Article 410.4 but should refer to Article 410.10(D).
- The 2020 edition of NFPA 58 in § 3280.703(d). It noted that the more recent version includes changes related to snow load maps, fire extinguisher requirements, fire resistance ratings, noncombustible materials, and other changes.
- The 2021 edition of NFPA 90B in § 3280.703(d) in order to incorporate updated reference standards and editorial changes.
- The 2021 edition of the NFPA 253 Standard on Types of Building Construction in § 3280.202 to stay consistent with the most current terminology for the definition of "limited combustibles" and "noncombustibles".
- The 2023 edition of NFPA 253 in § 3280.207(c). The commenter recommended the change to create uniformity with other fire test standards and provide more up-to-date referenced standards.

- The most current versions of ASTM E84 and UL 273. The commenter noted that the proposed rule references the 1995 version of the NFPA 255 on Standard Method of Test of Surface Burning Characteristics of Building Materials in §§ 3280.203(a) and 3280.207(a). It explained that the standard was withdrawn in 2009 and recommended removing the reference and using the most current versions of ASTM E84 and UL 273 instead.

- The 2022 edition of NFPA 72 in lieu of NFPA 720 in § 3280.211(b). The commenter noted that NFPA 720 was withdrawn in 2018 and its requirements were incorporated into the 2019 edition of NFPA 72.

HUD Response: HUD appreciates these comments and requests that the commenters submit these code changes to be reviewed by the MHCC, for the same reasons described previously. For reference standard version changes, HUD requests that copies of the exact version proposed for incorporation be included with the proposal. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

Use of Most Up-to-Date ASCE Reference Standards

One commenter made specific recommendations regarding use of the most current ASCE standards. Specifically, the commenter recommended that HUD incorporate the proposed rule's reference the 2022 edition of Minimum Design Loads for Buildings and Other Structures (ASCE/SEI 7-22). The comment explained that the standard provides the most up-to-date and coordinating loading provisions for general structural design, prescribes design loads for many types of hazards, and coordinates with other current structural material standards. In particular, the ASCE/SEI 7-22 standard updates wind, snow, seismic, rain, ice, and flood hazards to reflect the current state of practice and understanding of environmental hazards. The commenter further explained that the ASCE/SEI 7-22 standard refines wind loads to make use of the current knowledge of wind hazards and recent changes in wind speeds and also make use of new understandings of snowfall and wind effects on drift. The commenter concluded by stating that requiring new manufactured housing to comply with the state of practice, as defined by the latest standards of practice, will facilitate equitable, sustainable, and resilient infrastructure, will result in an improved standard of living and lower life-cycle costs and reinforce the Administration's goals and better

protect public health, safety, welfare, and environmental resilience.

HUD Response: HUD appreciates these comments and requests that the commenter submit proposed code changes to be reviewed by the MHCC, for the same reasons described previously. For reference standard version changes, HUD requests that copies of the specific version proposed for incorporation be included with the proposal. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

Updating to FEMA P-85

One commenter recommended that HUD incorporate FEMA P-85 as a reference standard and generally advised that HUD use the current versions of each standard.

HUD Response: HUD appreciates this comment and requests that the commenter submit this proposed code change to be reviewed by the MHCC with a specific version, referenced by date and year, that is to be considered for incorporation. As described in this preamble, the HUD has a statutory responsibility to place the public on notice regarding standards upon which it may take future enforcement action. Additionally, the specific standard incorporated into the MHCSS must first be reviewed and recommended to HUD by the MHCSS. Standards cannot be broadly incorporated into regulations to reference a “current version” and must be defined by name and date. HUD requests that copies of the specific version proposed for incorporation be included with the proposal. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

Testing of Energy Efficiency Compliance for Gas-Fired Water Heaters in § 3280.707(d)(2)

A commenter recommended that HUD incorporate applicable regulatory requirements established by the Department of Energy, rather than ANSI Standard Z21.10.1, in relation to the testing of energy efficiency compliance for gas-fired water heaters. The commenter explained that the relevant requirements had been removed from the ANSI Z21.10.1 standard.

HUD Response: HUD appreciates this comment and requests that the commenter submit this proposed code change to be reviewed by the MHCC, for the same reasons described previously. The public may submit proposed standards via the internet at mhcc.homeinnovation.com. While the MHCC considers the recommendation mentioned above for gas-fired water heaters, HUD wishes to remind

manufacturers that they must comply with all applicable statutory and regulatory requirements, including the Federal energy efficiency requirements for covered products and equipment such as residential water heaters, central air conditioners, and central heat pumps, even if they are not otherwise stated in the rule or impose obligations distinct from or additional to any obligations imposed by this rule.

Requirements for Windows, Sliding Glass Doors, and Skylights

One commenter recommended that HUD add the following language to § 3280.403, requirements for windows, sliding glass doors, and skylights. “All such windows and doors must show evidence of certification by affixing a quality certification label to the product from a product certification body accredited to ISO/IEC 17065 by an accreditation body that is internationally recognized to ISO/IEC 17011 and are signatories to international mutual recognition arrangements such as the Asia Pacific Accreditation Cooperation (APAC).” Another commenter recommended that HUD use updated ANSI Z97.1 (R2020).

HUD Response: HUD appreciates this comment and requests that the commenter submit this proposed code change to be reviewed by the MHCC, for the same reasons described previously. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

Laboratory Testing Requirements

One commenter recommended that HUD require testing laboratories to be accredited to ISO/IEC 17025 by an accreditation body that is internationally recognized to ISO/IEC 17011 and are signatories to international mutual recognition arrangements like the Asia Pacific Accreditation Cooperation.

HUD Response: HUD appreciates this comment and requests that the commenter submit this proposed code change to be reviewed by the MHCC, for the same reasons described previously addressing need for consensus review and public notification. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

Standard for Vinyl Siding and Polypropylene Siding Used in Manufactured Homes

One commenter requested clarification regarding how to proceed when the vinyl siding manufacturer’s installation instructions and the Vinyl Siding Institute Installation Manual (VSIIM) contradict one another.

Specifically, the commenter requested clarity on which set of instructions should take priority.

HUD Response: HUD does not reference the VSIIM. The final rule states under § 3280.309(c): “Vinyl siding and soffit installation must be installed in accordance with the manufacturer’s installation instructions. Vinyl siding and soffit installation must be based on ASTM D4756.” It is the manufacturer’s responsibility to ensure that its installation instructions are in accordance with ASTM D4756.

Reference to ASTM D4756 in § 3280.309(c)

One commenter expressed concerns about the reference to ASTM D4756 in the section on installation of vinyl siding and soffit installation in § 3280.309(c). The commenter recommended removal of the sentence which referenced ASTM D4756. The commenter explained that D4756 is an outdated standard that will be balloted for withdrawal as an ASTM standard under ASTM D20/D20.24. Furthermore, the commenter believed that manufacturer installation instructions and specifications should provide sufficient guidance. The commenter expressed concern about regulatory obligations to follow both manufacturer installation instructions and ASTM D4756, given that the two could differ. Another commenter stated that ASTM D4756-06 references ASTM E2112-07, and an 88-page standard for flashing installation. The commenter requested clarification on the standards that should be followed when there are contradictions between ASTM D4756-06 and ASTM E2112-07.

HUD Response: HUD acknowledges this comment and suggests that the commenter submit this proposed code change to be reviewed by the MHCC, for the same reasons described previously. The public may submit proposed standards via the internet at mhcc.homeinnovation.com. The MHCSS does not reference ASTM E2112-07. Although ASTM D4756 has been withdrawn, the standard is still available for public access and use and is included in the final rule until it can be revised by future rulemaking after consideration and recommendation by the MHCC.

Omission of § 3280.504(b)

One commenter noted that § 3280.504(b) references § 3280.504(b)(1) but that the proposed rule does not contain § 3280.504(b)(1). It suggests that following language be added: “§ 3280.504(b)(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”.

HUD Response: The language offered by the commenter can be found in the proposed rule at 3280.504(b)(1). The language states: “(1) Exterior walls shall have a vapor barrier no greater than 1 perm (dry cup method) installed on the living space side of the wall, or.” The final rule maintains the language found in the proposed rule without change.

Floor Area Requirements

Some commenters recommended that HUD re-evaluate the 150 square footage requirements in light of the allowance of three dwellings within a single manufactured home. The commenters noted that the 2015 IRC had reduced the size requirement for a habitable room to 70 square feet. Some commenters noted that the 150 number had not been based on scientific analysis or on identified safety hazards. The commenters recommended the following language in § 3280.109: “Each dwelling unit of a manufactured home shall have at least one living area with not less than 70 square feet of gross floor area”.

HUD Response: HUD acknowledges this comment and suggests that the commenter submit this proposed code change to be reviewed by the MHCC, for the same reasons described previously addressing need for consensus review and public notification. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

Clarity on the Meaning of “Exposed” (§ 3280.203(c)(1)(ii))

One commenter recommended the following language to clarify what surfaces are not considered “exposed”: “Exposed bottoms and sides of kitchen cabinets as required by § 3280.204; vertical surfaces above the horizontal plane formed by the bottom of the range hood are not considered exposed.”.

HUD Response: HUD acknowledges this comment but is of the opinion that the existing language which states, “Exposed bottoms and sides of kitchen cabinets as required by § 3280.204 except that non-horizontal surfaces above the horizontal plane formed by the bottom of the range hood are not considered exposed,” is sufficiently clear. HUD’s view is that “non-horizontal surfaces” is a more inclusive terminology than the alternate language proposed in the comment and more clearly describes which surfaces do not need to be considered as exposed. In the final rule, § 3280.203(c)(1)(ii) reads as follows: “Exposed bottoms and sides of kitchen cabinets as required by § 3280.204 except that non-horizontal

surfaces above the horizontal plane formed by the bottom of the range hood are not considered exposed.”

Moisture Content of Treated Lumber Used for Porch Designs

One commenter recommended that § 3280.304(a) add following language regarding porch designs with treated lumber extending into the main roof cavity: “Dimension and board lumber must not exceed 19 percent moisture content at time of installation. Treated lumber used for exterior purposes only *and does not extend into the main home construction* may have a moisture content exceeding 19 percent.”.

HUD Response: HUD accepts this comment and has added the language as suggested to provide additional clarity that the moisture content for treated lumber applies to porches and exterior applications only.

Requirements for Fireplace and Wood Stoves

One commenter expressed concern about HUD’s proposed revision to allow any fireplace or wood stove to be installed regardless of the testing and certification requirements specified by the Standard for Vented Gas Fireplace Heaters, CSA/ANSI Z21.88–2109 * CSA 2.33–2019. The commenter worried that using an appliance not tested and certified for manufactured homes might violate the listing and certification of the product.

HUD Response: HUD acknowledges this comment but reassures the commenter that if an installed product violates its listing and certification when installed in a manufactured home, then it would not be permissible under § 3280.709(a).

Drain Pan Requirements

Some commenters recommended that the § 3280.709(h) requirement for drain pan should be revised to facilitate the use of tankless water heaters. They recommended the following language in § 3280.709 to better align with the IRC P2801.6: “A corrosion-resistant water drip collection and drain pan must be installed under each *storage tank-type water heater or a hot water storage tank* that will allow water leaking from the water heater to drain to the exterior of the manufactured home, or to a drain.”

HUD Response: HUD accepts this comment and has added the language as suggested to support clarity for the allowed use of tankless water heaters included in this final rule.

Clarity on Appliance Installation Instruction Requirements

Some commenters expressed support for HUD’s attempt to reduce redundant appliance manuals but suggested that there might be need for further clarity in the language used in the proposed rule. They suggested the following language: “Operating instructions must be provided for each appliance. The operating instructions for each appliance must be provided with the homeowner’s manual unless the appliance is affixed with a permanent Quick Response (QR) Code.”

HUD Response: HUD acknowledges this comment, but the suggested language is not in line with the change implemented in the final rule. HUD requires one copy of the operating instructions for each application to be provided with the homeowners’ manual. A second copy shall be provided with the appliance only if the appliance does not have a QR code. The final rule text has been slightly adjusted to clarify HUD’s requirement.

Appliance Manufacturer Instructions

One commenter expressed concern that revision of § 3280.709(a) to remove a requirement that manufacturers leave appliance manufacturer instructions attached to appliances would conflict with the safety standards and fuel gas installation code requirements.

HUD Response: HUD acknowledges this comment but this change implemented in the final rule does not conflict with the safety standards and fuel gas installation code requirements. HUD still requires one copy of the operating instructions for each application to be provided with the homeowners’ manual and a second copy shall be provided with the appliance only if the appliance does not have a QR code. In response to this comment, HUD has slightly revised the text under § 3280.711 to clarify this.

Reference to Loose-Fill Insulation

A commenter expressed concern about the portion of the proposed rule referencing “[a] horizontal distance of not less than the depth of the wall cavity, where the call [sic] cavity is filled with cellulose loose-fill or other loose-fill insulation.” The commenter recommended that the language be changed to read, “where the wall cavity is filled with loose-fill insulation” to reduce the possibility that the rule would be understood to relate to cellulose insulation only. The commenter noted that the insulation market contains many loose-fill insulation types apart from cellulose and the change would reduce confusion.

HUD Response: HUD accepts this comment and has revised the language as suggested to provide additional clarity. The amended language can be found at § 3280.215(d)(2)(i)(B).

Windows and Doors Protections

One commenter recommended adding an exception to § 3280.403 that provisions for protection of openings of manufactured homes be required in construction for homes installed in wind-borne debris regions (reference definition in the IRC). The commenter stated that provision of protection can be defined by the IBC.

HUD Response: HUD acknowledges this comment and suggests that the commenter submit this proposed code change to be reviewed by the MHCC, for the same reasons described previously addressing need for consensus review and public notification. The public may submit proposed standards via the internet at mhcc.homeinnovation.com.

Implementation Period

Several commenters requested a minimum one-year implementation period because of the quantity of changes that the proposed rule would create to relevant regulatory requirements. They noted that the proposed rule included 69 updates to reference standards, 16 new standards, and three regulatory text changes. Other commenters specifically requested that HUD provide both an effective date, *i.e.*, when the rule will be effective, and a mandatory effective date, *i.e.*, when compliance would become mandatory; the commenters suggested a 90-day period between the two dates to permit product inventory and materials to be used to meet the standards. Two commenters noted the challenges associated with the reference standards in § 3280.4, which would require manufacturers to analyze and apply the numerous standards and codes to a wide range of components. These commenters also noted that compliance will necessitate consultation with production suppliers, DAPIAs, and IPIAs.

One commenter noted that a longer implementation period was necessary because of the burdens associated with the May 2022 Final Rule to Establish Energy Conservation Standards for Manufactured Housing requiring manufactured homes to comply with the 2021 International Energy Conservation Code by May 2023. Another commenter pointed out that the United States Department of Energy (DOE) had released a Final Rule requiring compliance with 10 CFR part 460 Energy Conservation Standards for

Manufactured Homes (May 31, 2022, 87 FR 32728; May 30, 2023, 88 FR 34411), which had allowed for a one-year implementation period, suggesting that HUD use this lengthy implementation period as a model.

Another commenter noted that the U.S. Department of Energy published a proposed rule entitled Energy Conservation Standards for Consumer Furnaces, (July 7, 2022, 87 FR 40590), which proposed a five-year implementation period for changes that the commenter suggested were much less significant. Commenters also referenced, in support of their request for a longer implementation period, previous extensions on implementation of HUD rules.

HUD Response: HUD understands these comments and has provided a six-month delayed effective date to allow manufacturers to implement the regulations effectively. This effective date will allow for smoother implementation and improved alignment between regulatory requirements and stakeholders' capabilities. HUD did not provide the full year implementation because many of the changes in this final rule support construction practices already in place by manufacturers, and will eliminate the need for alternative construction letters, improving efficiencies, and costs. HUD is not implementing bifurcated deadlines because such deadlines would likely create confusion among manufacturers regarding the effective dates, much to the detriment of consumers and manufacturers alike.

Cost Considerations

One commenter recommended that HUD accommodate the entry level of the market even as it permits new, high-end construction methods. The commenter urged that when HUD assesses the costs and benefits of minimum quality and safety standards that raise the legal quality floor of MHCSS construction, that HUD consider that the housing alternatives for the marginal consumer priced out of an entry-level MHCSS home that are not built to the updated codes. The commenter stated that increased up-front purchase prices that produce later savings to ultimately reduce the total cost of ownership is an appropriate consideration. The commenter recommended that lifecycle cost analyses justifying those changes should include, in their sensitivity analysis, a scenario with a discount rate equal to an index average MHCSS home chattel loan rate. Chattel loan rates, according to the commenter, can exceed OMB's standard 3 percent and 7 percent real discount rates for cost-benefit

analysis. Consumers must finance higher up-front costs that deliver future benefits with the current financing options. Actual financing costs must be considered in the lifecycle cost analysis to guarantee real, all-in consumer savings are achieved.

HUD Response: HUD acknowledges these comments. Manufactured housing plays a vital role in meeting the housing needs in the U.S. today and provides a significant resource for affordable homeownership and rental housing accessible to all Americans. HUD recognizes the need to protect the affordability of manufactured homes to facilitate the availability of housing particularly for economically constrained consumers and recognizes the need for improved financing options supporting manufactured housing. While these issues extend beyond the scope of this regulation, several offices within the Federal Government in addition to the Department are actively working to address financing issues for manufactured housing, such as the Federal Housing Finance Agency and U.S. Department of Agriculture's Rural Development agency.

Other Issues

Issue 1: One commenter recommended that HUD mandate floating homes and require that homes be made of 'indestructible' material such as stone or an ice chest. This comment was submitted alongside a screenshot of text describing "Surface Roughness D" and a graphic unrelated to the proposed rule.

HUD Response: HUD acknowledges this comment and as previously discussed in these responses, encourages members of the public to submit proposals and suggestions to the MHCC for consideration at mhcc.homeinnovation.com.

Issue 2: One commenter recommended that regular updates be made to the MHCSS at least every 10 years. Another commenter echoed this concern and advised HUD to adopt a regular cadence of updating regulations so that the MHCSS can keep pace with evolving technologies and best practices.

HUD Response: HUD acknowledges this comment and fully agrees with the need for regular code updates to keep pace with evolving technologies and best practices. In recent years, HUD has made significant progress in updating its regulations, but continues to face hurdles that slow down the cadence of updates. For example, the regulatory process mandating consensus committee review and recommendation is a vital component to ensure that

HUD's manufactured housing standards and regulations consider and align the interests of manufactured housing consumers, industry stakeholders, and the government, particularly in respect to affordability, home quality, and consumer protection. This statutory process, however, adds in a layer of complexity and duration that most other Federal rulemaking is not subjected to.

Issue 3: Without specifying any particular aspects of the proposed rule, two commenters expressed general concerns that the rule would undermine the affordability of MHCSS homes. One commenter explained that he viewed the requirements as so strict as to exceed the requirements for IRC homes and site-built homes in the same location.

HUD Response: HUD acknowledges but disagrees with this comment. Furthermore, as previously described, HUD is not updating the reference standard for wind load design in this final rule that may have been a cause of concern for some members of the public.

Issue 4: One commenter laid out several general standards that it believed should guide HUD's rulemaking in this area. First, the commenter stated that Federal modular standards ought to align with State modular codes in order to mitigate conflict and allow for increased product availability. Second, the commenter recommended that HUD permit alternative building methods and materials without third-party testing, so long as the engineer signed off, in order to encourage innovation. Third, the commenter advised that structural requirements are preferable to specification of building materials and structures, such as steel I-beams or chassis requirements. The former reduce costs and unnecessary design elements, while still advancing building design and integrity, according to the commenter. Fourth, the commenter believed that quality control measures at assembly line factories were sufficient and that unnecessary factory inspections should be reduced. And, fifth, the commenter believed that the MHCSS should be made the national standard and it should cover every building type and situation covered in the regular building code.

HUD Response: HUD acknowledges this comment and as previously discussed in these responses, encourages members of the public to submit proposals and suggestions to the MHCC for consideration at mhcc.homeinnovation.com.

Issue 5: One commenter recommended that HUD incorporate

"universal design and Visitability." The Commenter also recommended that HUD provide safety standards for homes built on partial foundations.

HUD Response: HUD acknowledges this comment and supports the concept of accessible and inclusive housing for all individuals. As previously discussed in these responses, HUD encourages members of the public to submit proposals and suggestions to the MHCC for consideration at mhcc.homeinnovation.com.

Issue 6: One commenter flagged what it believed to be a typographical error in § 3280.607 in which "with sides and back extending" repeated twice. The commenter recommended deleting the second set of words to remedy the duplicative language.

HUD Response: HUD did not find this duplicative language in the proposed rule and has verified that this also does not exist in the final rule.

Issue 7: One commenter asked HUD what she could do to make her home more fire resistant. She said that she had been told her manufactured home wasn't as safe as a site-built home and that she was having difficulty getting homeowners insurance as a result.

HUD Response: HUD acknowledges this comment and while it is not related to the final rule, would like to respond that the National Fire Protection Association (NFPA) provides a Manufactured Home Fire Safety Guide that offers tips and recommendations for homeowners to reduce fire risks in their homes. This guide covers topics such as smoke alarms, cooking safety, heating safety, electrical safety, and escape planning. In addition, homeowners may have additional resources available to make their homes more fire-resistant including programs offered by local fire departments or State and local government programs that can help manufactured homeowners make improvements and upgrades for fire safety. Some programs may provide financial assistance, grants, or low-interest loans to support the installation of fire-resistant materials, such as fire-rated siding, roofing, and windows, that may assist in qualifying for some insurance programs. HUD encourages the commenter to start by contacting their local government to inquire about available resources for fire safety improvements.

Issue 8: One commenter recommended that HUD take several measures to improve the effectiveness of the rule outside of changing the drafting of the rule. Specifically, it recommended that HUD experts in manufactured housing participate in the development of HUD's Affirmatively

Furthering Fair Housing (AFFH) rulemaking to ensure that the AFFH standards support increased access to manufactured homes. It advised that such experts be vigilant for exclusionary zoning and building practices targeting manufactured homes. It also recommended that HUD's intergovernmental relations staff should coordinate with HUD's manufactured housing staff to promote state-level reforms allowing easy conversion of MHCSS homes from personal chattel property into real property and to inform Congress of the barriers to the success of manufactured housing that require legislative efforts. Finally, it recommended that HUD updated grant scoring and prioritization to reward jurisdictions that permit multifamily housing of all construction efforts.

HUD Response: HUD acknowledges these comments and while these comments do not directly impact HUD's final rule, appreciates the public's interest in HUD's programs. HUD is actively working to increase cross-collaboration within the Department to improve knowledge sharing and leverage shared resources.

IV. Incorporation by Reference

A. Introduction

The incorporated 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. These standards are available for inspection at HUD's Office of Manufactured Housing Programs. Copies of the incorporated reference standards may also be obtained from the following organizations that developed the standard:

- AISC—American Institute of Steel Construction, One East Wacker Drive, Chicago, IL 60601, (312) 670-5403, www.aisc.org.
- AISI—American Iron and Steel Institute, 25 Massachusetts Ave. NW, Suite 800, Washington, DC 20001, (202) 452-7100, www.steel.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 (formerly the American Plywood Association), 7011 South 19th Street, Tacoma, WA 98411, (253) 565-6600, fax (253) 565-7265, www.apawood.org.
- ASHRAE—American Society of Heating, Refrigerating, and Air Conditioning Engineers, 180 Technology Parkway NW, Peachtree Corners, Atlanta, GA 30092, (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: 973882-8113, www.asme.org.

ASTM—ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428, (610) 832-9500, fax (610) 832-9555, www.astm.org.

AWC—American Wood Council (formerly American Forest & Paper Association), 1101 K Street NW, Suite 700, Washington, DC 20005, (202) 463-2766, www.awc.org.

FGIA—Fenestration and Glazing Industry Alliance (formerly known as American Architectural Manufacturers Association (AAMA)), 1900 East Golf Road, Schaumburg, Illinois 60173, (847) 303-5664, www.fgiaonline.org.

CSA Group—CSA Group (formerly known as the Canadian Standards Association (CSA)), 178 Rexdale Boulevard, Toronto, ON, M9W 1R3, Canada; (216) 524-4990; www.csagroup.org.

HPVA—Hardwood Plywood and Veneer Association, 1825 Michael Faraday Drive, P.O. Box 2789, Reston, VA 22090, (703) 435-2900, fax (703) 435-2537, www.hpva.org.

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.

ICC—ES—International Code Council Evaluation Service, 3060 Saturn Street, Suite 100, Brea, CA 92821, (800) 423-6587, fax (562) 695-4694, www.icc-es.org.

ISO—The International Organization for Standardization, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, 41-22-749-0111, www.iso.org.

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

SAE—Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096, (724) 776-0790, www.sae.org.

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

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

WDMA—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.

Any standard that appears in §§ 3280.304, 3280.604, or 3280.703, but that is not included in the list of new or updated consensus standards, was previously approved for incorporation by reference into that section. In addition, the following standards were previously approved for incorporation by reference in the sections where they appear in this final rule: ASSE 106, ASSE 1070, SEI/ASCE 8, UL, 181B, UL 217.

B. List of New Consensus Standards

This final rule incorporates by reference 16 new consensus standards for Manufactured Housing, which are listed below:

1. *ANSI Z21.10.3-2014/CSA 4.3-2014*. Gas-fired water heaters, volume III, storage water heaters with input ratings above 75,000 Btu per hour, circulating and instantaneous. The rule adds this new standard for incorporation by reference. This new standard specifies guidelines for newly produced, large automatic storage water heaters having input ratings above 75,000 Btu/hr (21 980 W), instantaneous water heaters, and circulating water heaters including booster water heaters, constructed entirely of new, unused parts and materials. This standard is available online for review via read-only, electronic access at <https://ibr.ansi.org/Standards>.

2. *ANSI Z21.75-2007/CSA 6.27-2007 (reaffirmed 2012)*. Connectors for Outdoor Gas Appliances And Manufactured Homes. This rule adds a standard for incorporation by reference that specifies guidelines for newly produced assembled connectors constructed entirely of new, unused parts and materials. This standard is available online for review via read-only, electronic access at <https://ibr.ansi.org/Standards>.

3. *APA Y510-1997*. Plywood Design Specification. The rule adds this standard for incorporation by reference. The standard is a specification that presents section properties, recommended design stresses, and design methods for plywood when used in building construction and related structures. This standard is available online for review via read-only, electronic access at <https://ibr.ansi.org/Standards>.

4. *ASTM D3679-09a*. Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Siding. This rule adds this standard for incorporation by reference. This specification establishes requirements and test methods for the materials, dimensions, warp, shrinkage, impact strength, expansion, appearance, and wind load resistance of extruded single-wall siding manufactured from rigid (unplasticized) PVC compound. This standard is available online for review via read-only, electronic access at <https://www.ASTM.org/READINGLIBRARY>.

5. *ASTM D4756-06*. Standard Practice for Installation of Rigid Poly(Vinyl Chloride) (PVC) Siding and Soffit. This rule adds this standard for incorporation by reference. This standard covers the minimum requirements for and the

methods of installation of rigid vinyl siding, soffits, and accessories on the exterior wall and soffit areas of buildings. This standard also covers aspects of installation relating to effectiveness and durability in service. This standard is available online for review via read-only, electronic access at <https://www.ASTM.org/READINGLIBRARY>.

6. *ASTM D7254-07*. Standard Specification for Polypropylene (PP) Siding. The rule adds this standard for incorporation by reference. This new specification establishes requirements and test methods for materials, impact strength, appearance, surface flame spread, and wind load resistance of siding products manufactured from polypropylene material. This standard is available online for review via read-only, electronic access at <https://www.ASTM.org/READINGLIBRARY>.

7. *ASTM E90-09*. Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements. This rule adds this standard for incorporation by reference. This test method covers the laboratory measurement of airborne sound transmission loss of building partitions such as walls of all kinds, operable partitions, floor-ceiling assemblies, doors, windows, roofs, panels, and other space-dividing elements. This standard is available online for review via read-only, electronic access at <https://www.ASTM.org/READINGLIBRARY>.

8. *ASTM E492-09*. Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine. This rule adds this standard for incorporation by reference. This test method covers the laboratory measurement of impact sound transmission of floor-ceiling assemblies using a standardized tapping machine. This standard is available online for review via read-only, electronic access at <https://www.ASTM.org/READINGLIBRARY>.

9. *ASTM E814-13*. Standard Test Method for Fire Tests of Penetration Firestop Systems. This rule adds this standard for incorporation by reference. This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions. This standard contemplates fire testing that evaluates a firestop under fire conditions to determine if it will gain firestop status. It addresses areas of building construction where firestop systems are necessary to contain fire from spreading from one area to another around penetrating items. This standard

is available online for review via read-only, electronic access at <https://www.ASTM.org/READINGLIBRARY>.

10. *ISO/IEC 170065:2012(E)*. Conformity Assessment—Requirements for bodies certifying products, processes, and services. The rule adds this standard for incorporation by reference. This International Standard contains requirements for the competence, consistent operation and impartiality of product, process and service certification bodies. This standard is available online for review via read-only, electronic access at <https://ibr.ansi.org/Standards>.

11. *NFPA 13D*. Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes. The rule adds this standard for incorporation by reference. This standard covers the design, installation, and maintenance of automatic sprinkler systems for protection against the fire hazards in one- and two-family dwellings and manufactured homes. This standard is available online for review via read-only, electronic access at <https://ibr.ansi.org/Standards>.

12. *TT-P-1536A*. Plumbing Fixture Setting Compound. The rule adds this standard for incorporation by reference. This standard covers materials that combine watertight, gastight, odor proof, and vermin proof properties for plumbing fixtures which are connected to drainage systems. This standard is available online for review via read-only, electronic access at <http://www.everyspec.com>. The Federal Specification may also be obtained from the General Services Administration, which serves as Superintendent of Documents.

13. *UL 263*. Standard for Safety Fire Tests of Building Construction and Materials. The rule adds this standard for incorporation by reference. These fire tests are applicable to assemblies of masonry units and composite assemblies of structural materials for buildings, including bearing and other walls and partitions, columns, girders, beams, slabs, and composite slab and beam assemblies for floors and roofs. They are also applicable to other assemblies and structural units that constitute permanent integral parts of a finishing building. This standard is available online for review via read-only, electronic access at <https://ibr.ansi.org/Standards>.

14. *UL 499*. Standard for Safety Electric Heating Appliances. The rule adds this standard for incorporation by reference. These requirements cover heating appliances rated at 600 V or less for use in unclassified locations in

accordance with the National Electrical Code (NEC), NFPA 70–2014. This standard is available online for review via read-only, electronic access at <https://ibr.ansi.org/Standards>.

15. *UL 1479*. Standard for Fire Tests of Penetration Firestops. This rule adds this standard for incorporation by reference. This standard provides testing requirements of penetration firestops of various materials and construction that are intended for use in openings in fire resistive wall, floor, or floor-ceiling assemblies, and membrane type penetration firestops of various materials and construction that are intended for use in openings in fire resistive wall assemblies. This standard is available online for review via read-only, electronic access at <https://ibr.ansi.org/Standards>.

16. *UL 60335-2-40-2012*. Standard for Safety: Household and Similar Electrical Appliances—Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers. The rule adds this standard for incorporation by reference. This standard deals with the safety of sealed (hermetic and semi-hermetic type) motor-compressors, their protection and control systems, if any, which are intended for use in equipment for household and similar purposes and which conform with the standards applicable to such equipment. This standard is available online for review via read-only, electronic access at <https://ibr.ansi.org/Standards>.

C. List of Updated Consensus Standards

This final rule incorporates by reference updates to 74 consensus standards for manufactured housing:

1. *AAMA 1701.2-12*. Voluntary Standard for Utilization in Manufactured Housing for Primary Windows and Sliding Glass Doors. The rule updates AAMA 1701.2 to the 2012 version. This updated standard sets the requirements for primary windows and sliding glass doors used in manufactured housing. Window mounted as components in entry doors are beyond the scope of this standard. Since building methods and materials are expected to undergo continued design innovation, the purpose of this standard is to establish reasonable performance standards for all present and future methods and materials of construction.

2. *AAMA 1702.2-12*. Voluntary Standard for Utilization in Manufactured Housing for Swinging Exterior Passage Doors. The rule updates AAMA 1702.2, Voluntary Standard Swinging Exterior Passage Door for Utilization in Manufactured

Housing. This updated standard sets requirements for swinging exterior passage doors and combination doors used in manufactured housing. Windows used in swinging exterior passage doors are components of the door and are thus included in this standard. Since building methods and materials are expected to undergo continued design innovation, the purpose of this standard is to establish reasonable performance standards for all present and future methods and materials of construction.

3. *AAMA 1704-12*. Voluntary Standard Egress Window Systems for Utilization in Manufactured Housing. The rule updates the AAMA Standard 1704, which sets the requirements for the design, construction, and installation of egress window systems.

4. *AAMA/WDMA/CSA 101/I.S.2/A440-17*. North American Fenestration Standard/Specification for windows, doors, and skylights. The rule updates AAMA/WDMA/CSA 101/I.S.2/A440. The updated standard establishes material-neutral, minimum, and optional performance requirements for windows, doors, secondary storm products, tubular daylighting devices, roof windows, and unit skylights. The specification concerns itself with the determination of performance grade, design pressure, and related performance ratings.

5. *AISC 360-10*. Specification for Structural Steel Buildings. The rule updates AISC–S335, 1989. This updated specification provides the generally applicable requirements for the design and construction of structural steel buildings and other structures.

6. *AISI S100-12*. North American Specification for the Design of Cold-Formed Steel Structural Members. The rule updates AISI, Specification for the Design of Cold-Formed Steel Structural Members, 1996. This updated specification provides the general applicable requirements for the design of cold-formed steel structural members used in North America.

7. *ANSI/AHRI Standard 210/240-2008 with Addenda 1 and 2*. 2008 Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment. The rule updates ANSI/ARI 210/240, Unitary Air-Conditioning and Air-Source Heat Pump Equipment. This updated standard establishes definitions, classifications, test requirements, rating requirements, minimum data requirements for published ratings, operating requirements, marking and nameplate data, and conformance conditions for Unitary Air-Conditioners and Air-Source Unitary Heat Pumps.

8. *ANSI A135.4–2012*. Basic Hardboard. The rule updates ANSI/AHA A135.4–1995. This updated standard covers requirements and test methods for water resistance, thickness swelling, modulus of rupture, tensile strength, surface finish, dimensions, squareness, edge straightness, and moisture content of five classes of basic hardboard. This standard requires test methods determined by the ASTM, International where appropriate and provides methods of identifying hardboard that is compliant.

9. *ANSI/A135.5–2012*. Prefinished Hardboard Paneling. The rule updates ANSI/AHA A135.5–1995. This updated standard covers requirements and methods of testing for the dimensions, squareness, edge straightness, and moisture content of prefinished hardboard paneling and for the finish of the paneling. Methods of identifying products which conform to ANSI A135.5 are included in the standard.

10. *ANSI A135.6–2012*. Engineered Wood Siding. The rule updates ANSI/AHA A135.6–1998. The updated standard sets requirements and methods of testing for the dimensions, straightness, squareness, physical properties, and surface characteristics of engineered wood siding at the time of manufacture.

11. *ANSI A208.1–2009*. Particleboard. The rule updates ANSI A208.1–1999. The updated standard sets forth requirements and test methods for dimensional tolerances, physical and mechanical properties, and formaldehyde emissions for particleboard. Methods of identifying products conforming to the standard are specified.

12. *ANSI LC 1–2014/CSA 6.26–2014*. Fuel gas piping systems using corrugated stainless steel tubing. The rule updates ANSI/IAS LC 1–1997. This updated standard provides the applicable requirements for the installation of natural and propane gas piping systems using corrugated stainless steel tubing in residential, commercial, or industrial buildings. This includes requirements for the installation of corrugated stainless steel piping systems in which portions of the piping are exposed to the outdoors as required to make connections to outdoor gas meters or to outdoor gas appliances, which are attached to, mounted on, or located near the building structure.

13. *ANSI Z21.1–2016/CSA 1.1–2016*. Household cooking gas appliances. The rule updates ANSI Z21.1–2000. This updated standard specifies guidelines for the newly produced household cooking gas appliances constructed entirely of new, unused parts and

materials. These appliances may be floor-supported or built-in.

14. *ANSI Z21.5.1–2015/CSA 7.1–2015*. Gas clothes dryers, volume I, type 1 clothes dryer. The rule updates ANSI Z21.51.1–1999. The updated standard specifies guidelines for newly produced Type 1 clothes dryers constructed entirely of new, unused parts and materials for use with natural gas, manufactured gas, mixed gas, propane gas, LP gas-air mixtures, and for mobile home installation.

15. *ANSI Z21.10.1–2014/CSA 4.1–2014*. Gas water heaters, volume I, storage water heaters with input ratings of 75,000 Btu per hour or less. The rule updates ANSI Z21.10.1–1998. This updated standard specifies guidelines for newly produced, automatic storage water heaters having input ratings of 75,000 Btu/hr (21 980 W) or less, hereinafter referred to as water heaters or appliances, constructed entirely of new, unused parts and materials.

16. *ANSI Z21.15–2009 (reaffirmed 2019)/CSA 9.1–2009 (reaffirmed 2019)*. American National Standard/CSA Standard for Manually Operated Gas Valves for Appliances, Appliance Connector Valves, and Hose End Valves. The rule updates ANSI Z21.15–1997. This updated standard applies to manually operated gas valves not exceeding 4 inch (102 mm) pipe size, and pilot shut-off devices.

17. *ANSI Z21.19–2014/CSA 1.4–2014*. Refrigerators using gas fuel. The rule updates ANSI Z21.19–1990. This updated standard specifies guidelines for gas-fired refrigerators having refrigerated spaces for storage of foods, storage of foods and making ice, storage of frozen foods and making ice, or storage of foods and the storage of frozen foods and making ice. The standard applies to newly produced refrigerators constructed entirely of new, unused parts and materials.

18. *ANSI Z21.20–2014 (reaffirmed 2019)/CAN/CSA C22.2 No. 60730–2–5–14 (reaffirmed 2019)*. Automatic electrical controls for household and similar use—Part 2–5: Particular requirements for automatic electrical burner control systems. This rule updates ANSI Z21.20. This updated standard specifies guidelines for newly produced automatic gas ignition systems and components constructed entirely of new, unused parts and materials.

19. *ANSI Z21.21–2012/CSA 6.5–2012*. Automatic valves for gas appliances. This rule updates ANSI Z21.21–2000. This updated standard specifies guidelines for newly produced automatic valves constructed entirely of new, unused parts and materials. These

valves may be individual automatic valves or valves utilized as parts of automatic gas ignition systems. The standard also applies to commercial/industrial safety shutoff valves, also referred to as C/I valves.

20. *ANSI Z21.23–2000*. Gas Appliance Thermostats with ANSI Z21.23a–2003 and ANSI Z21.23b–2005 Addendums. This rule updates ANSI Z21.23–1993, which specifies guidelines for newly produced gas appliance thermostats of the integral gas valve type having a maximum operating gas pressure of ½ psi (3.5 kPa) or electric type:

a. ANSI Z21.23–2000, Gas Appliance Thermostats, Tenth Edition;

b. ANSI Z21.23a–2003, Addenda to the Tenth Edition of Gas Appliance Thermostats; and

c. ANSI Z21.23b–2005, Addenda to the Tenth Edition of ANSI Z21.23–2000 and Addenda Z21.23a–2003: Gas Appliance Thermostats.

21. *ANSI Z21.24–2006/CSA 6.10–2006 (reaffirmed 2011)*. Connectors for Gas Appliances. The rule updates ANSI Z21.24–1997/CSA 6.10–M97 and removes the reference to the Canadian Gas Association. This updated standard specifies guidelines for newly produced gas appliance connectors constructed entirely of new unused parts and materials, having nominal internal diameters of ¼, ⅜, ½, ⅝, ¾ and 1 inch, and having fittings at both ends provided with taper pipe threads for connection to a gas appliance and to house piping. Guidelines cover assembled appliance connectors not exceeding a nominal length of six (6) feet (1.83 meters). Connectors listed under this standard are intended for use with gas appliances not frequently moved after installation.

22. *ANSI Z21.47–2012/CSA 2.3–2012*. Standard for Gas-fired central furnaces. The rule updates ANSI Z21.47. The updated standard contains new and revised requirements for documentation and testing and sets forth basic standards for the safe operation, substantial and durable construction, and acceptable performance of gas-fired central furnaces.

23. *ANSI Z97.1–2009e*. American National Standard for safety glazing materials used in buildings—safety performance specifications and methods of test. The rule updates ANSI Z97.1–2004. This standard establishes the specifications and methods of test for the safety properties of safety glazing materials (glazing materials designed to promote safety and to reduce or minimize the likelihood of cutting and piercing injuries when the glazing materials are broken by human contact) as used for all building and architectural

purposes. The updated standard adds modifications and new material that add clarity of purpose, intent and procedures. Specifically, sections have been rewritten and new sections added to provide additional assurance that the intended safe-break characteristics have been achieved before a test specimen may be declared compliant. This reference standard impacts the HUD Code to define safety glazing materials used in glass and glazed openings such as windows and sliding glass doors, and hazardous locations requiring safety glazing.

24. *APA D510C*. Panel Design Specification. The rule replaces APA D410A–2004, Panel Design Specification, with this standard. This standard specifies guidelines for newly produced assembled connectors constructed entirely of new, unused parts and materials.

25. *APA E30V*. Engineered Wood Construction Guide. The rule updates APA E30R, Engineered Wood Construction Guide, revised January 2001. This standard specifies guidelines for the use of engineered wood for residential and commercial construction. It contains information on APA performance rated panels, glulam, I-joists, structural composite lumber, specification practices, floor, wall and roof systems, diaphragms and shear walls, fire-rated systems, and methods of finishing.

26. *APA H815G*. Plywood Design Specification Supplement 5–12, Design and Fabrication of All-Plywood Beams. The rule updates APA H815E–1995 to APA H815G. This standard presents recommended methods for the design and fabrication of staple-glued all-plywood beams. Allowable stresses and other design criteria are provided, as well as guidelines for beam fabrication.

27. *APA S811P*. Plywood Design Specification Supplement 1–12, Design and Fabrication of Plywood Curved Panels. The rule updates APA S811M–1990. This specification presents the recommended method for the design and fabrication of curved plywood roof panels spanning between load-bearing supports so that the stresses developed act circumferentially around the curve.

28. *APA S812S*. Plywood Design Specification Supplement 2–12, Design and Fabrication of Glued Plywood Lumber Beams. The rule updates APA S812R–1992. This updated specification presents the recommended method for the design and fabrication of glued plywood and lumber beams.

29. *APA U813M*. Plywood Design and Specification Supplement 3–12, Design and Fabrication of Plywood-Stressed Skin Panels. The rule updates APA

U813L–1992. The updated specification presents the recommended method for the design and fabrication of glued plywood stressed-skin panels.

30. *APA U814J*. Plywood Design Specification Supplement 4–12, Design and Fabrication of Plywood Sandwich Panels. The rule updates APA U 814H. This updated specification presents the recommended method for the design and fabrication of flat plywood sandwich panels.

31. *ANSI/ASHRAE Standard 62.2–2013*. Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings. The rule updates ANSI/ASHRAE 62.2. This updated standard describes the minimum requirements to achieve acceptable indoor air quality via dwelling-unit ventilation, local demand-controlled exhaust, and source control.

32. *ANSI/ASME B1.20.1–2013*. Pipe Threads, General Purpose (Inch). The rule updates ASME B1.20.1. This standard establishes specifications for wrought copper and wrought copper alloy, solder-joint, seamless fittings, designed for use with seamless copper tube conforming to ASTM B88 (water and general plumbing systems), B280 (air conditioning and refrigeration service), and B819 (medical gas systems), as well as fittings intended to be assembled with soldering materials conforming to ASTM B32, brazing materials conforming to AWS A5.8, or with tapered pipe thread conforming to ASME B1.20.1. This standard is aligned with ASME B16.18, which covers cast copper alloy pressure fittings, and provides requirements for fitting ends suitable for soldering. This standard covers pressure-temperature ratings, abbreviations for end connections, size and method of designating openings of fittings, marking, material, dimensions and tolerances, and tests.

33. *ANSI/ASME B36.10–2004*. Welded and Seamless Wrought Steel Pipe. The rule updates ASME B36.10. This standard covers the standardization of dimensions of welded and seamless wrought steel pipe for high or low temperatures and pressures. The word pipe is used, as distinguished from tube, to apply to tubular products of dimensions commonly used for pipeline and piping systems. Pipe NPS 12 (DN 300) and smaller have outside diameters numerically larger than their corresponding sizes. In contrast, the outside diameters of tubes are numerically identical to the size number for all sizes.

34. *ASTM A53/A53M–12*. Standard Specification for Pipe, Steel, Black, and Hot-Dipped, Zinc-Coated, Weldless and Seamless. The rule updates ASTM A53. This specification covers seamless and

welded black and hot-dipped galvanized steel pipe in NPS 1/8 to NPS 26. The steel categorized in this standard must be open-hearth, basic-oxygen, or electric-furnace processed, and must have specified chemical requirements. Testing requirements for seamless or welded tubing are provided in this standard.

35. *ASTM B42–10*. Standard Specification for Seamless Copper Pipe, Standard Sizes. The rule updates ASTM B42. This specification establishes the requirements for seamless copper pipe in all nominal standard pipe sizes, both regular and extra-strong, suitable for use in plumbing, boiler feed lines, and for similar purposes.

36. *ASTM B88–14*. Standard Specification for Seamless Copper Water Tube. The rule updates ASTM B88. The specification covers seamless copper water tube suitable for general plumbing, applications for the conveyance of fluids, and use with solder, flared, or compression-type fittings.

37. *ASTM B251–10*. Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube. The rule updates ASTM B251. This updated specification sets forth the general requirements for wrought seamless copper and copper-alloy tube.

38. *ASTM B280–13*. Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service. The rule updates ASTM B280. This specification sets forth the requirements for seamless copper tube intended for use in the connection, repairs, or alterations of air conditioning or refrigeration units in the field.

39. *ASTM C1396/C1396M–14a*. Standard Specification for Gypsum Board. The rule updates ASTM C 36/C 36M. This specification covers gypsum boards which include the following: gypsum wallboard for use on walls, ceilings, or partitions and that affords a surface suitable to receive decoration; predecorated gypsum board for use as the finished surfacing for walls, ceilings, or partitions; gypsum backing board, coreboard, and shaftliner board for use as a base in multilayer systems or as a gypsum stud or core in semisolid or solid gypsum board partitions, or in shaft wall assemblies; water-resistant gypsum backing board to be used as a base for the application of ceramic or plastic tile on walls or ceilings; exterior gypsum soffit board for exterior soffits and carport ceilings that are completely protected from contact with liquid water; gypsum sheathing board for use as sheathing on buildings; gypsum base for veneer plaster; gypsum lath for use

as a base for gypsum plaster application; and gypsum ceiling board for interior ceilings and walls.

40. *ASTM D4442–07*. Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood Base Materials. The rule updates ASTM D4442. The test methods cover the determination of the moisture content of wood, veneer, and other wood-based materials, including those that contain adhesives and chemical additives.

41. *ASTM D4444–13*. Standard Test Method for Laboratory Standardization and Calibration of Hand-Held Moisture Meters. The rule updates ASTM D4444. These test methods cover the measurement of moisture content of solid wood products, including those containing additives (that is, chemicals or adhesives) for laboratory standardization and calibration of hand-held moisture meters.

42. *ASTM E96/E96M–13*. Standard Test Methods for Water Vapor Transmission of Materials. The rule updates ASTM E96. The test methods cover the determination of water vapor transmission rate of materials, such as, but not limited to, paper, plastic films, other sheet materials, coatings, foams, fiberboards, gypsum and plaster products, wood products, and plastics.

43. *ASTM E119–14*. Standard Test Method for Fire Tests of Building Construction and Materials. The rule updates ASTM E119. This standard contemplates fire test response criteria which is essential for fire safety. Testing per this standard establishes the duration for which a specific material or installation can contain a fire. This information helps to show insurance carriers, contractors, and other parties what might reasonably be expected in the event of a fire emergency.

44. *AWC 2012–Design Values for Joists and Rafters*. Design Values for Joists and Rafters. The rule updates AFPA, Design Values for Joists and Rafters 1992. This standard provides design values such as bending, compression, and modulus of elasticity for joists and rafters, and tabulates allowable bending (Fb) and modulus of elasticity (E) design values for visually graded and mechanically graded dimension lumber.

45. *AWC NDS–2015*. NDS: National Design Specification for Wood Construction. The rule updates ANSI/AFPA NDS. This specification defines the methods to be followed in structural design with the following wood products: visually graded lumber, mechanically graded lumber, structural glued laminated timber, timber piles, timber poles, prefabricated wood I-joists, structural composite lumber,

wood structural panels, and cross-laminated timber. It also defines the practice to be followed in the design and fabrication of single and multiple fastener connections using the fasteners described within it.

a. National Design Specification for Wood Construction, Design Values for Wood Construction; and
b. NDS Supplement.

46. *AWC 2012 Span Tables for Joists and Rafters*. Span Tables for Joists & Rafters. The rule updates AFPA, Span Tables for Joists and Rafters. This standard provides a simplified system for determining allowable joist and rafter spans for typical loads encountered in one- and two-family dwellings and is referenced in the *2012 International Building Code*.

47. *ANSI/HPVA HP–1–2009*. American National Standard for Hardwood and Decorative Plywood. The rule updates ANSI/HPVA HP–1. This standard sets forth the specific requirements for all face, back, and inner ply grades as well as formaldehyde emissions, moisture content, tolerances, sanding, and grade marking for hardwood and decorative plywood.

48. *IAPMO TS 9–2003*. Standard for Gas Supply Connectors for Manufactured Homes. The rule updates IAPMO TS 9. This standard applies to connectors for outdoor use consisting of flexible tubing depending on all-metal construction for gas tightness and having a fitting at each end provided with tapered pipe threads for connecting manufactured home gas piping to a manufactured home lot gas outlet or a crossover in multiple unit manufactured homes.

49. *ESR 1539*. ICC–ES Evaluation Report: Power Driven Staples and Nails. The rule updates NER–272, National Evaluation Report. This document contains design values and allowable load tables for individual nails and staples as well as for nailed or stapled shear walls that may not be listed in the Uniform Building Code.

50. *NPFA 31*. Standard for Installation of Oil Burning Equipment. The rule updates NFPA 31. This standard sets forth the requirements for the safe, efficient design and installation of heating appliances that use a liquid fuel, typically No. 2 heating oil, but also lighter fuels, such as kerosene and diesel fuel, and heavier fuels, such as No. 4 fuel oil.

51. *NFPA 54/ANSI Z223.1*. National Fuel Gas Code. The rule updates NFPA 54. This standard provides minimum safety requirements for the design and installation of fuel gas piping systems in homes and other buildings.

52. *NFPA 58*. Liquefied Petroleum Gas Code. The rule updates NFPA 58. This standard sets forth the requirements for safe liquefied petroleum gas storage, handling, transportation, and use. This standard mitigates risks and ensures safe installations, to prevent failures, leaks, and tampering that could lead to fires and explosions.

53. *NPFA 70*. National Electric Code. This rule updates NFPA 70. This standard sets forth the requirements for safe electrical design, installation, and inspection to protect people and property from electrical hazards. The purpose of this Code is the practical safeguarding of persons and property from hazards arising from the use of electricity.

54. *NFPA 90B*. Standard for the Installation of Warm Air Heating and Air-Conditioning Systems. The rule updates NFPA 90B. This standard sets forth the requirements that cover the construction, installation, operation, and maintenance of systems for warm air heating and air conditioning, including filters, ducts, and related equipment to protect life and property from fire, smoke, and gases resulting from fire or from conditions having manifestations similar to fire.

55. *NIST PS–1–09*. Voluntary Product Standard: Structural Plywood (with Typical APA Trademarks). This rule adds this standard for incorporation by reference. The standard specifies guidelines for producing, marketing, and specifying plywood for construction and industrial uses. This standard is available online for review via read-only, electronic access at <https://www.nist.gov/document/docps1-09structuralplywoodpdf>.

56. *SAE J533 (REV SEP2007)*. (R) Flares for Tubing. The rule updates SAE J533. This standard covers specifications and performance requirements for 37° and 45° single and double flares for tube ends intended for use with SAE J512, SAE J513, SAE J514, and ISO 8434–2 connectors.

57. *TPI 1–2007*. National Design Standard for Metal Plate Connected Wood Truss Construction and 2007 Commentary and Appendices. This standard establishes minimum requirements for the design and construction of metal-plate-connected wood Trusses. This standard describes the materials used in a Truss, both lumber and steel, and design procedures for Truss members and joints:

a. ANSI/TPI 1–2007, National Design Standard for Metal Plate Connected Wood Truss Construction; and

b. TPI 1–2007 Commentary and Appendices.

58. *UL 103*. Standard for Safety Factory-Built for Residential Type and Building Heating Appliances. The rule updates UL 103. This standard sets forth the requirements for factory-built chimneys intended for venting gas, liquid, and solid-fuel fired residential-type appliances and building heating appliances in which the maximum continuous flue-gas outlet temperatures do not exceed 1,000 °F (538 °C).

59. *UL 109*. Tube Fittings for Flammable and Combustible Fluids, Refrigeration Service, and Marine Use. The rule updates UL 109. This standard sets forth the requirements that apply to the performance in flame-exposure tests of flame-resistant fabrics of natural, synthetic or combination of natural and synthetic fibers, or plastic films intended for such use as tents, awnings, draperies or decorations.

60. *UL 174*. Standard for Safety Household Electric Storage Tank Water Heaters. The rule updates UL 174. This standard sets forth the requirements for household electric storage tank and small capacity storage tank water heaters that are rated no more than 600 volts and 12 kilowatts and are to be installed in accordance with the NFPA 70 and with model plumbing and mechanical codes.

61. *UL 181*. Standard for Safety Factory Made Air Ducts and Connectors. The rule updates UL 181. This standard sets forth the requirements that apply to materials for the fabrication of air duct and air connector systems for use in accordance with the International Mechanical Code, International Residential Code, and Uniform Mechanical Code, Standards of the National Fire Protection Association for the Installation of Air-Conditioning and Ventilating Systems, NFPA 90A, and the Installation of Warm Air Heating and Air-Conditioning Systems, NFPA 90B.

62. *UL 181A*. Standard for Safety Closure Systems for Use with Rigid Air Ducts. The rule updates UL 181A. This

standard sets forth the requirements that cover closure systems for use with factory-made rigid air ducts or air connectors complying with the Standard for Factory-Made Air Ducts and Air Connectors, UL 181.

63. *UL 268*. Smoke Detectors for Fire Protective Signaling Systems. This rule updates UL 268. This standard sets forth requirements that cover smoke detectors intended to be employed in indoor locations in accordance with the National Fire Alarm Code, NFPA 72.

64. *UL 307A*. Liquid Fuel-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles. The rule updates UL 307A. This standard sets forth requirements that apply to certain types of liquid fuel-burning appliances intended for installation in manufactured homes and recreational vehicles, including travel trailers, camping trailers, truck campers, motor homes, and park trailers.

65. *UL 307B*. Gas-Burning Appliances for Manufactured Homes and Recreational Vehicles. The rule updates UL 307B. This standard sets forth the requirements that apply to the certain gas fuel-burning heating appliances.

66. *UL 441*. Gas Vents. The rule updates UL 441. This standard sets forth the requirements that cover Types B and BW gas vents and Types B and BW gas vent roof jacks intended for venting gas appliances equipped with draft hoods to burn only gas.

67. *UL 569*. Standard for Safety Pigtails and Flexible Hose Connectors for LP-Gas. The rule updates UL 569. This standard sets forth the requirements that cover pigtailed and flexible hose connectors used in the assembly of fuel-supply systems and intended for liquefied petroleum gas.

68. *UL 1042*. Standard for Safety Electric Baseboard Heating Equipment. The rule updates UL 1042. This standard sets forth the requirements for portable and fixed electric baseboard heating equipment rated at 600 volts or

less, to be employed in ordinary locations in accordance with NFPA 70.

69. *UL 2034*. Standard for Safety Single and Multiple Station Carbon Monoxide Alarms. This rule updates UL 2034. This standard sets forth the requirements for electrically operated single and multiple station carbon monoxide alarms intended for protection in ordinary indoor locations of dwelling units, including manufactured homes.

70. *WMDA I.S.4-2009*. Industry Specification for Preservative Treatment for Millwork. The rule updates NWWDA I.S.4. This specification provides a nationally recognized standard for the water-repellent preservative treatment for millwork and serves as a basis of common understanding for producers, preservative formulators, distributors and users. The standard is also intended to promote fair competition within the industry and to aid purchasers and users in obtaining properly treated millwork.

D. Summary of New and Updated 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” and a reference standard being updated is indicated by the designation “U.” Reference standards designated “*” are not new or being updated, but have already been codified into the MHCSS and are being added to a different section of the regulations than the currently codified regulations. The sections of the MHCSS being amended by each modification are also shown on the right of each reference standard being added or updated.

SUMMARY TABLE OF NEW AND UPDATED IBR STANDARDS UNDER § 3280.4
[4th/5th Set Final Rule]

Number	N/U	Standard	Publishing organization	Title	Year	3280.4	Impacted sections
1	U	AAMA 1701.2	American Architectural Manufacturers Association.	Voluntary Standard for Utilization in Manufactured Housing for Primary Window and Sliding Glass Doors.	2012	(u)(3)	3280.403(b) and (e), 3280.404(b) and (e).
2	U	AAMA 1702.2	American Architectural Manufacturers Association.	Voluntary Standard for Utilization in Manufactured Housing for Swinging Exterior Passage Doors.	2012	(u)(4)	3280.403(e), 3280.405(b) and (e).

SUMMARY TABLE OF NEW AND UPDATED IBR STANDARDS UNDER § 3280.4—Continued
[4th/5th Set Final Rule]

Number	N/U	Standard	Publishing organization	Title	Year	3280.4	Impacted sections
3	U	AAMA 1704	American Architectural Manufacturers Association.	Voluntary Standard Egress Window Systems for Utilization in Manufactured Housing.	2012	(u)(5)	3280.404(b) and (e).
4	U	AAMA/WDMA/CSA 101/I.S.2/A440.	American Architectural Manufacturers Association/Window and Door Manufacturers Association.	North American Fenestration Standard/Specification for Windows, Doors, and Skylights.	2017	(r)(1)	3280.304(b)(1), 3280.403(b) and (e), 3280.404(b) and (e), 3280.405(b) and (e).
5	U	AISC 360	American Institute of Steel Construction.	Specifications for Structural Steel Buildings.	2010	(f)(1)	3280.304(b)(2), 3280.305(j)(1).
6	U	AISI S100	American Iron and Steel Institute.	North American Specification for the Design of Cold-Formed Steel Structural Members.	2012	(g)(1)	3280.304(b)(2), 3280.305(j)(1).
7	U	ANSI/AHRI 210/240 with Addenda 1 and 2.	American National Standards Institute/Air Conditioning, Heating, & Refrigeration Institute.	Unitary Air-Conditioning and Air-Source Heat Pump Equipment.	2008	(b)(1)	3280.511(b), 3280.703(d)(22), 3280.714(a).
8	U	ANSI A135.4	American National Standards Institute.	Basic Hardboard	2012	(q)(1)	3280.304(b)(3).
9	U	ANSI A135.5	American National Standards Institute.	Prefinished Hardboard Paneling.	2012	(q)(2)	3280.304(b)(3).
10	U	ANSI A135.6	American National Standards Institute.	Hardboard Siding ...	2012	(q)(3)	3280.304(b)(3).
11	U	ANSI A208.1	American National Standards Institute.	Particleboard	2009	(q)(4)	3280.304(b)(3).
12	U	ANSI LC 1	American National Standards Institute.	Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing.	2014	(r)(2)	3280.705(b)(5).
13	U	ANSI Z21.1	American National Standards Institute.	Household Cooking Gas Appliances.	2016	(r)(3)	3280.703(a)(13).
14	U	ANSI Z21.5.1	American National Standards Institute.	Gas Clothes Dryers Volume 1, Type 1 Clothes Dryers.	2015	(r)(4)	3280.703(a)(7).
15	U	ANSI Z21.10.1	American National Standards Institute.	Gas Water Heaters Volume 1, Storage Water Heaters with Input Ratings of 75,000 BTU per hour or less.	2014	(r)(5)	3280.703(a)(15), 3280.707(d)(2).
16	N	ANSI Z21.10.3	American National Standards Institute.	Gas-fired Water Heaters Volume 3, Storage Water Heaters with Input Ratings Above 75,000 BTU per Hour, Circulating and Instantaneous.	2014	(r)(6)	3280.703(a)(8).
17	U	ANSI Z21.15	American National Standards Institute.	Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves.	2009	(r)(7)	3280.703(c)(4), 3280.705(c) and (l).
18	U	ANSI Z21.19	American National Standards Institute.	Refrigerators Using Gas Fuel.	2014	(r)(8)	3280.703(a)(14).
19	U	ANSI Z21.20	American National Standards Institute.	Automatic Gas Ignitions Systems and Components.	2014	(r)(9)	3280.703(d)(9).
20	U	ANSI Z21.21	American National Standards Institute.	Automatic Valves for Gas Appliances.	2012	(r)(10)	3280.703(d)(10).

SUMMARY TABLE OF NEW AND UPDATED IBR STANDARDS UNDER § 3280.4—Continued
[4th/5th Set Final Rule]

Number	N/U	Standard	Publishing organization	Title	Year	3280.4	Impacted sections
21	U	ANSI Z21.23	American National Standards Institute.	Gas Appliance Thermostats, Tenth Edition.	2000	(r)(11)(i)	3280.703(d)(11).
22	U	ANSI Z21.23a	American National Standards Institute.	Addenda to the Tenth Edition of Gas Appliance Thermostats.	2003	(r)(11)(ii)	3280.703(d)(11).
23	U	ANSI Z21.23b	American National Standards Institute.	Addenda to the Tenth Edition of ANSI Z21.23–2000 and Addenda Z21.23a–2003.	2005	(r)(11)(iii)	3280.703(d)(11).
24	U	ANSI Z21.24	American National Standards Institute.	Connectors for Gas Appliances.	2006	(r)(12)	3280.703(c)(3).
25	U	ANSI Z21.47	American National Standards Institute.	Gas Fired Central Furnaces (Except Direct Vent Systems).	2012	(r)(14)	3280.703(a)(10).
26	N	ANSI Z21.75	American National Standards Institute.	Connectors for Outdoor Gas Appliances and Manufactured Homes.	2007	(r)(15)	3280.703(a)(11).
27	U	ANSI Z97.1	American National Standards Institute.	Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test.	2009	(h)(9)	3280.113(d), 3280.304(b)(6), 3280.405(d), 3280.607(b), 3280.703(d)(4).
28	U	APA D510C (replaces APA D410A).	The Engineered Wood Association (formerly the American Plywood Association).	Panel Design Specification.	2012	(m)(1)	3280.304(b)(3).
29	U	APA E30V	The Engineered Wood Association (formerly the American Plywood Association).	Engineered Wood Construction Guide.	2011	(m)(3)	3280.304(b)(3).
30	U	APA H815G	The Engineered Wood Association (formerly the American Plywood Association).	Design & Fabrication of All-Plywood Beams.	2013	(m)(4)	3280.304(b)(3).
31	U	APA S811P	The Engineered Wood Association (formerly the American Plywood Association).	Design & Fabrication of Plywood Curved Panels.	2013	(m)(5)	3280.304(b)(3).
32	U	APA S812S	The Engineered Wood Association (formerly the American Plywood Association).	Design & Fabrication of Glued Plywood Lumber Beams.	2013	(m)(6)	3280.304(b)(3).
33	U	APA U813M	The Engineered Wood Association (formerly the American Plywood Association).	Design & Fabrication of Plywood-Stressed Skin Panels.	2013	(m)(7)	3280.304(b)(3).
34	U	APA U814J	The Engineered Wood Association (formerly the American Plywood Association).	Design & Fabrication of Plywood Sandwich Panels.	2013	(m)(8)	3280.304(b)(3).
35	N	APA Y510	The Engineered Wood Association (formerly the American Plywood Association).	Plywood Design	1997	(m)(9)	3280.304(b)(3).

SUMMARY TABLE OF NEW AND UPDATED IBR STANDARDS UNDER § 3280.4—Continued
[4th/5th Set Final Rule]

Number	N/U	Standard	Publishing organization	Title	Year	3280.4	Impacted sections
36	U	ANSI/ASHRAE 62.2	American National Standards Institute/American Society of Heating, Refrigeration and Air Conditioning Engineers.	Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.	2013	(j)(2)	3280.103(d) and (e), 3280.703(d)(23).
37	U	ANSI/ASME B1.20.1.	American National Standards Institute/American Society of Mechanical Engineers.	Pipe Threads, General Purpose (Inch).	2013	(k)(18)	3280.604(c)(1), 3280.703(b)(3), 3280.705(e), 3280.706(d).
38	U	ANSI/ASME B36.10	American Society of Mechanical Engineers.	Welding and Seamless Wrought Steel Pipe.	2004	(k)(26)	3280.604(c)(1), 3280.703(b)(4), 3280.705(b)(1), 3280.706(b)(1).
39	U	ASTM A53/A53M ...	ASTM, International	Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless.	2012	(n)(1)	3280.604(c)(1), 3280.703(b)(1).
40	U	ASTM B42	ASTM, International	Standard Specification for Seamless Copper Pipe, Standard Sizes.	2010	(n)(4)	3280.604(c)(2), 3280.703(c)(7).
41	U	ASTM B88	ASTM, International	Standard Specification for Seamless Copper Water Tube.	2014	(n)(6)	3280.604(c)(2), 3280.703(c)(1), 3280.705(b)(3), 3280.706(b)(3).
42	U	ASTM B251	ASTM, International	Standard Specification for General Requirements for Wrought Seamless Copper-Alloy Tubes.	2010	(n)(7)	3280.604(c)(2), 3280.703(c)(6).
43	U	ASTM B280	ASTM, International	Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.	2013	(n)(8)	3280.703(c)(2), 3280.705(b)(3), 3280.706(b)(3).
44	U	ASTM C1396/C1396M.	ASTM, International	Standard Specification for Gypsum Board.	2014	(n)(12)	3280.304(b)(4)(i).
45	N	ASTM D3679	ASTM, International	Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding.	2009a	(n)(21)	3280.304(b)(6), 3280.309(b)(1).
46	U	ASTM D4442	ASTM, International	Standard Test Methods for Direct Moisture Content Measurement of Wood & Wood Base Materials.	2007	(n)(23)	3280.304(b)(3).
47	U	ASTM D4444	ASTM, International	Standard Test Method for Laboratory Standardization and Calibration of Hand-Held Moisture Meters.	2013	(n)(24)	3280.304(b)(3).
48	N	ASTM D4756	ASTM, International	Standard Practice for Installation of Rigid Poly (Vinyl Chloride) (PVC) Siding and Soffit.	2006	(n)(26)	3280.304(b)(6), 3280.309(c).
49	N	ASTM D7254	ASTM, International	Standard Specification for Polypropylene (PP) Siding.	2007	(n)(28)	3280.304(b)(6), 3280.309(b)(2).

SUMMARY TABLE OF NEW AND UPDATED IBR STANDARDS UNDER § 3280.4—Continued
[4th/5th Set Final Rule]

Number	N/U	Standard	Publishing organization	Title	Year	3280.4	Impacted sections
50	N	ASTM E90	ASTM, International	Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.	2009	(n)(30)	3280.115(b).
51	U	ASTM E96/E96M	ASTM, International	Standard Test Methods for Water Vapor Transmission of Materials.	2013	(n)(31)	3280.504(a) and (c).
52	U	ASTM E119	ASTM, International	Standard Test Method for Fire Tests of Building Construction and Materials.	2014	(n)(32)	3280.215(a) and (d)(1)(iii), 3280.304(b)(3)(xxvii), 3280.1003(a)(1).
53	N	ASTM E492	ASTM, International	Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine.	2009	(n)(34)	3280.115(c).
54	N	ASTM E814	ASTM, International	Standard Test Method for Fire Tests of Penetration Firestop Systems.	2013	(n)(37)	3280.215(b)(1)(ii).
55	U	AWC Design Values for Joists and Rafters (formerly under AFPA).	American Wood Council (formerly American Forest & Paper Association).	Design Values for Joists and Rafters, 2012 Edition.	2012	(o)(3)	3280.304(b)(3).
56	U	AWC NDS (formerly under AFPA).	American Wood Council (formerly American Forest & Paper Association).	National Design Specifications for Wood Construction.	2015	(o)(1)(i)	3280.215(a), 3280.304(b)(3).
57	U	AWC NDS Supplement (formerly under AFPA).	American Wood Council (formerly American Forest & Paper Association).	NDS Supplement, Design for Wood Construction.	2015	(o)(1)(ii)	3280.215(a), 3280.304(b)(3).
58	U	AWC Span Tables for Joists and Rafters (formerly under AFPA).	American Wood Council (formerly American Forest & Paper Association).	Span Tables for Joists and Rafters, 2012 Edition.	2012	(o)(2)	3280.304(b)(3)(xix).
59	U	ANSI/HPVA HP-1	American National Standards Institute/Hardwood Plywood and Veneer Association (previously HPMA).	American National Standard for Hardwood and Decorative Plywood.	2009	(s)(1)	3280.304(b)(3)(iv).
60	U	IAPMO TS 9	Int'l Association of Plumbing and Mechanical Officials.	Standard for Gas Supply Connectors for Manufactured Homes.	2003	(x)(8)	3280.703(c)(5).
61	N	ISO/IEC 17065	Int'l Organization for Standardization/Int'l Electrotechnical Commission.	Conformity Assessment—Requirements for Bodies Certifying Products, Processes and Services.	2012	(z)(1)	3280.403(e)(1), 3280.404(e)(2), 3280.405(e)(1).
62	U	ESR 1539	International Code Council Evaluation Service (previously known as National Evaluation Service).	Power Driven Staples and Nails.	2014	(y)(1)	3280.304(b)(5)(i).

SUMMARY TABLE OF NEW AND UPDATED IBR STANDARDS UNDER § 3280.4—Continued
[4th/5th Set Final Rule]

Number	N/U	Standard	Publishing organization	Title	Year	3280.4	Impacted sections
63	N	NFPA 13D	National Fire Protection Association.	Standard for the Installation of Sprinkler Systems in One and Two Family Dwellings and Manufactured Homes.	2010	(dd)(1)	3280.214(b), (e)(2), and (o)(3)(i).
64	U	NFPA 31	National Fire Protection Association.	Installation of Oil-Burning Equipment.	2011	(dd)(2)	3280.703(d)(13), 3280.707(f).
65	U	NFPA 54/ANSI Z223.1.	National Fire Protection Association/American National Standards Institute.	National Fuel Gas Code.	2015	(dd)(3)	3280.703(d)(14).
66	U	NFPA 58	National Fire Protection Association.	Standard for the Storage and Handling of Liquefied Petroleum Gas.	2014	(dd)(4)	3280.703(d)(16).
67	U	NFPA 70	National Fire Protection Association/National Electric Code.	National Electric Code.	2014	(dd)(5)	3280.607(c), 3280.801(a) and (b), 3280.803(k), 3280.804(a) and (k), 3280.805(a), 3280.806(d), 3280.807(c), 3280.808(l) and (p), 3280.810(b), 3280.811(b).
68	U	NFPA 90B	National Fire Protection Association.	Warm Air Heating and Air Conditioning Systems.	2015	(dd)(6)	3280.703(d)(15).
69	U	SAE J533	Society of Automotive Engineers.	Flares for Tubing ...	2007	(hh)(1)	3280.703(d)(17), 3280.705(f)(1).
70	N	TT-P-1536A	Federal Specification.	Plumbing Fixture Setting Compound.	1975	(t)(3)	3280.604(b).
71	U	TPI 1 (replaces TPI-85).	Truss Plate Institute	National Design Standard for Metal Plate Connected Wood Truss Construction.	2007	(jj)(1)(l)	3280.304(b)(3)(ix).
72	U	TPI 1 Commentary and Appendices.	Truss Plate Institute	2007 Commentary and Appendices.	2007	(jj)(1)(ii)	3280.304(b)(3)(ix).
73	U	PS 1 Voluntary Product Standard.	National Institute of Standards and Technology.	Structural Plywood (with Typical APA Trademarks).	2009	(ee)(1)	3280.304(b)(3).
74	U	UL 103	Underwriters' Laboratories, Inc.	Chimneys, Factory Built Residential Type & Building Heating Appliance.	2010	(kk)(2)	3280.703(d)(18).
75	U	UL 109	Underwriters' Laboratories, Inc.	Tube Fittings for Flammable and Combustible Fluids, Refrigeration Service, and Marine Use.	2005	(kk)(3)	3280.703(d)(5).
76	U	UL 174	Underwriters' Laboratories, Inc.	Household Electric Storage Tanks Water Heaters.	2004	(kk)(5)	3280.703(a)(16).
77	U	UL 181	Underwriters' Laboratories, Inc.	Factory Made Air Ducts & Connectors.	2013	(kk)(6)	3280.702, 3280.703(d)(1), 3280.715(a) and (e).
78	U	UL 181A	Underwriters' Laboratories, Inc.	Closure Systems for Use with Rigid Air Ducts and Air Connectors.	2013	(kk)(7)	3280.703(d)(2), 3280.715(c).
79	N	UL 263	Underwriters' Laboratories, Inc.	Fire Tests of Building Construction Materials.	2014	(kk)(10)	3280.215(a) and (d)(1)(iii).
80	U	UL 268	Underwriters' Laboratories, Inc.	Smoke Detectors for Fire Protective Signaling Systems.	1999	(kk)(11)	3280.209(a), 3280.703(a)(1).

SUMMARY TABLE OF NEW AND UPDATED IBR STANDARDS UNDER § 3280.4—Continued
[4th/5th Set Final Rule]

Number	N/U	Standard	Publishing organization	Title	Year	3280.4	Impacted sections
81	U	UL 307A	Underwriters' Laboratories, Inc.	Liquid Fuel-Burning Heating Appliances for Manufactured Homes & Recreational Vehicles.	2009	(kk)(12)	3280.703(a)(2), 3280.707(f).
82	U	UL 307B	Underwriters' Laboratories, Inc.	Gas-Burning Appliances for Manufactured Homes & Recreational Vehicles.	2009	(kk)(13)	3280.703(a)(6).
83	U	UL 441	Underwriters' Laboratories, Inc.	Gas Vents	2010	(kk)(15)	3280.703(d)(12).
84	N	UL 499	Underwriters' Laboratories, Inc.	Standard for Electric Heating Appliances.	2014	(kk)(16)	3280.703(a)(19).
85	U	UL 569	Underwriters' Laboratories, Inc.	Pigtails & Flexible Hose Connectors for LP Gas.	2013	(kk)(17)	3280.703(d)(6), 3280.705(l)(1).
86	U	UL 1042	Underwriters' Laboratories, Inc.	Electric Baseboard Heating Equipment.	2009	(kk)(20)	3280.703(a)(4).
87	N	UL 1479	Underwriters' Laboratories, Inc.	Fire Tests of Penetration Firestops.	2014	(kk)(22)	3280.215(d)(1)(ii).
88	U	UL 2034	Underwriters' Laboratories, Inc.	Standard for Single and Multiple Station Carbon Monoxide Alarms, Fourth Edition.	2016	(kk)(25)	3280.209(a), 3280.211(a), 3280.703(a)(18).
89	N	UL 60335-2-40	Underwriters' Laboratories, Inc.	Standard for Household and Similar Electrical Appliances—Safety, Part 2-34: Particular Requirements for Motor-Compressors.	2012	(kk)(26)	3280.703(a)(16).
90	U	WDMA I.S.4	Window and Door Manufacturers Association.	Industry Specification for Preservative Treatment for Millwork.	2009	(mm)(1)	3280.405(c).

V. Findings and Certifications

Regulatory Review—Executive Orders 12866, 13563, and 14094

Under Executive Order 12866 (Regulatory Planning and Review), a determination must be made whether a regulatory action is significant and, therefore, subject to review by the Office of Management and Budget (OMB) in accordance with the requirements of the order. Executive Order 13563 (Improving Regulations and Regulatory Review) directs executive agencies to analyze regulations that are “outmoded, ineffective, insufficient, or excessively burdensome, and to modify, streamline, expand, or repeal them in accordance with what has been learned.” Executive Order 13563 also directs that, where relevant, feasible, and consistent with regulatory objectives, and to the extent permitted by law, agencies are to identify and consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public. Executive Order

14094 entitled “Modernizing Regulatory Review” (hereinafter referred to as the “Modernizing E.O.”) amends section 3(f) of Executive Order 12866, among other things.

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)(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 at either www.regulations.gov or in the Regulations Division, Office of the General Counsel, 451 7th Street SW, Washington, DC 20410-0500. HUD strongly encourages the public to view the docket file at www.regulations.gov. Due to security measures at the HUD Headquarters building, please schedule an appointment to review the docket file by calling the Regulations Division at 202-402-3055 (this is not a toll-free

number). HUD welcomes and is prepared to receive calls from individuals who are deaf or hard of hearing, as well as individuals with speech or communication disabilities. To learn more about how to make an accessible telephone call, please visit: <https://www.fcc.gov/consumers/guides/telecommunications-relay-service-trs>.

Paperwork Reduction Act

The information collection requirements contained in this final rule have been approved by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3520). In accordance with the Paperwork Reduction Act, 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 valid control number. OMB has issued HUD the control number 2502-0253 for the information collection requirements under the current Manufactured

Housing Construction and Safety Standards Program.

This final rule revises the technical standards within the MHCSS that address the fourth and fifth sets of recommendations made to HUD by the MHCC. The revisions include a large number of updated standards incorporated by reference, which will bring the MHCSS in line with more current industry standards, improve the quality and safety of manufactured homes constructed, and allow for expanded, innovative opportunities to use of manufactured housing, such as multi-dwelling unit manufactured homes. The revisions will eliminate the need for manufacturers to obtain special approvals from HUD for some construction features and options, including tankless water heaters, home designs with peak flip roof assemblies, and accessible shower compartments. This will cause the Design Approval Primary Inspection Agencies (DAPIAs) to subsequently experience a reduction in requests to review AC submissions and issue fewer concurrence correspondences to OMHP.

The overall reporting and recordkeeping burden for collection number 2502–0253 addressed in this final rule is estimated as follows:

Number of respondents: 196.

Number of responses: 197,014.

Frequency of response: 1,005.

Average hours per response: 1.2.

Total estimated burden: 238,994.

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 was made at the proposed rule stage 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)). The Finding of No Significant Impact remains applicable and is available for review in the docket for this rule on www.regulations.gov.

Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et seq.*) requires an agency to conduct a regulatory flexibility

analysis of any rule subject to notice and comment rulemaking requirements, unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.

The final rule regulates establishments primarily engaged in making manufactured homes (NAICS 321991). The Small Business Administration's size standards define an establishment primarily engaged in making manufactured homes as small if it does not exceed 1250 employees. 13 CFR 121.201. Of the 242 firms included under this NAICS definition, approximately 37 produce manufactured homes subject to the MHCSS. Of the 37 manufacturers subject to the MHCSS, 34 are considered small businesses based on the threshold of 1250 employees or less. The final rule would apply to all manufacturers. The rule would, thus, affect a substantial number of small entities.

HUD has determined, however, that this rule would not have a significant economic impact on a substantial number of small entities. As discussed in the economic impact analysis prepared for this rule, most of the revisions enacted by this rule would not affect costs of manufacturers, large or small, and provide benefit to homeowners. Furthermore, seven code changes enacted by this rule would affect the cost of design, production, or installation of manufactured homes by decreasing the costs of manufacturing.

This rule also eliminates the need for manufacturers to prepare and submit an Alternate Construction (AC) letter in four circumstances, providing all manufacturers, large and small, additional cost savings and increased flexibility in design. The changes provide additional options and increased flexibility in the four circumstances, which include design of accessible shower compartments, multi-dwelling unit manufactured homes, and revised floor plans. Savings from the reduced administrative burden associated with AC letter application and compliance is \$771,000 per production year.

Two revisions increase production costs. The change to 24 CFR 3280.307(f) requires that the exterior wall envelope of a manufactured home contain a water resistive barrier behind the exterior cladding, as well as have a means of draining water that enters the assembly. The water resistant barriers, which are common in large manufactured homes and less common in small manufactured homes, would increase the upfront production costs. Based on HUD's industry knowledge, small businesses

produce custom or larger manufactured homes and were much likelier to have incorporated water resistant barriers in their products prior to this rule. This means the costs of water resistive barriers have largely been incorporated into existing manufacturing costs for small businesses compared to large businesses.

There are no significant alternatives to the water resistive barrier standard. This is because no alternatives reduce the fire hazard risks in manufactured homes as effectively as this water resistant barrier standard while maintaining a similar cost structure. Further, no similar standards were considered by the MHCC, which includes numerous industry representatives and recommends incorporation of the standards, or recommended to HUD. This lack of recommendation divests HUD of authority to implement an alternative standard.

The rule also updates the AWC National Design Specification for Wood Construction reference from the 2001 to 2015 edition. This change, which amends the design values for the grade of wood needed for structural elements, was recommended by the MHCC after the Southern Pine Inspection Bureau (SPIB), an independent non-profit industry inspection agency, discovered that the strength of southern pine lumber had decreased and that previous standards were insufficient to protect against structural failure. The recommendations from the SPIB provide that the most effective method to avoid structural failure is changing the values. This led the manufactured housing industry, including small manufacturers, to implement the 2015 edition of this standard in their production process. Further, the MHCC did not consider an alternative or provide HUD with a recommendation and this rule codifies a standard that is broadly used in the industry.

Overall, the regulatory impact analysis for this rule concluded that the decreased costs of design, production and installation of manufactured homes would reduce burden and result in an overall positive economic impact on manufacturers and consumers. The regulatory impact analysis also provides that the rule would produce net benefits ranging from \$160.4 million to \$334.4 million per production year. HUD has considered the effects of changes between the proposed rule and this final rule and finds that the regulatory impact analysis has changed minimally.

HUD solicited comments from the public at the proposed rule stage on whether the rule would impose a significant economic impact on a

substantial number of small entities. HUD received no comments suggesting that it would impose a significant economic impact on a substantial number of small entities. A handful of comments asserted the final rule would impose increased burdens on manufacturers in general, but the comments did not assert or suggest the burdens were economically significant or disproportionately impacted small businesses.

Accordingly, the undersigned certifies that the rule will not have a significant economic impact on a substantial number of small entities.

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.

List of Subjects

24 CFR Part 3280

Fire prevention, Housing standards, Incorporation by reference.

24 CFR Part 3282

Administrative practice and procedure, Consumer protection, Intergovernmental relations, Investigations, Manufactured homes, Reporting and recordkeeping requirements, Warranties.

24 CFR Part 3285

Housing standards, Manufactured homes.

24 CFR Part 3286

Administrative practice and procedure, Consumer protection, Intergovernmental relations, Manufactured homes, reporting and recordkeeping requirements.

Accordingly, for the reasons discussed in the preamble, HUD amends 24 CFR parts 3280, 3282, 3285, and 3286 to read as follows:

PART 3280—MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS

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

Authority: 15 U.S.C. 2697, 42 U.S.C. 3535(d), 5403, and 5424.

■ 2. Amend § 3280.2 by:

■ a. Revising the definition for “Certification label”;

■ b. Adding, in alphabetical order, the definition for “Dwelling”;

■ c. Revising the definition for “Dwelling unit”; and

■ d. Adding, in alphabetical order, the definitions for “Multipurpose fire sprinkler system”, “Stand-alone fire sprinkler system”, and “Water resistive barrier”.

The revisions and additions read as follows:

§ 3280. 2 Definitions.

* * * * *

Certification label means the approved form of certification by the manufacturer that, under § 3280.11, is permanently affixed to each transportable section of each manufactured home manufactured for sale in the United States.

Dwelling means any structure that contains one to a maximum of four dwelling units, designed to be permanently occupied for residential living purposes.

Dwelling unit means a single unit that provides complete independent living facilities for one or more persons, where the occupancy is primarily permanent in nature, including permanent provisions for separate living, sleeping, cooking, eating, and sanitation.

* * * * *

Multipurpose fire sprinkler system means a system that supplies domestic water to both plumbing fixtures and fire sprinklers.

* * * * *

Stand-alone fire sprinkler system means a system that is separate and independent from the water distribution system.

* * * * *

Water resistive barrier means a material behind the exterior wall covering that is intended to prevent liquid water that has penetrated behind the exterior covering from intruding further into the exterior wall assembly.

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■ 3. Revise and republish § 3280.4 to read as follows:

§ 3280.4 Incorporation by reference.

(a)(1) Certain material is incorporated by reference in this part with the

approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the U.S. Department of Housing and Urban Development (Department) must publish a document in the **Federal Register** and the material must be available to the public. All approved incorporation by reference (IBR) material is available for inspection at the Department and at the National Archives and Records Administration (NARA). Contact the Department at: Office of Manufactured Housing Programs, 451 Seventh Street SW, Washington, DC 20410; email mhs@hud.gov; (202) 402-2698. For information on the availability of this material at NARA, visit www.archives.gov/federal-register/cfr/ibr-locations or email fr.inspection@nara.gov.

(2) The IBR material may be obtained from the sources in this paragraph (a)(2) or from one or more private resellers listed in this paragraph (a)(2). For material that is no longer commercially available, contact the Office of Manufactured Housing Programs (see paragraph (a)(1) of this section).

(i) Accuris Standards Store, phone: (800) 332-6077; website: <https://store.accuristech.com>.

(ii) American National Standards Institute (see paragraph (h) of this section).

(iii) EverySpec LLC, 710 Lake Louise Ct., Gibsonsia, PA 10544; website: <http://everyspec.com>. (Government and military standards only.)

(iv) GlobalSpec, 257 Fuller Road, Suite NFE 1100, Albany, NY 12203-3621; phone: (800) 261-2052; website: <https://standards.globalspec.com>.

(v) Nimonik Document Center, 401 Roland Way, Suite 224, Oakland, CA, 94624; phone (650)591-7600; email: info@document-center.com; website: www.document-center.com.

(b) Air Conditioning, Heating & Refrigeration Institute (AHRI), 2311 Wilson Blvd., Suite 400, Arlington, VA 22201; telephone: 703-524-8800; fax: 703-528-3816; website: www.ahrinet.org.

(1) ANSI/AHRI Standard 210/240-2008 with Addenda 1 and 2, 2008 Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment, ANSI-approved December 2012; IBR approved for §§ 3280.511(b); 3280.703(d); 3280.714(a).

(2) [Reserved]

(c) Aluminum Association (AA), 1525 Wilson Blvd., Suite 600, Arlington, VA 22209; telephone: 703-358-2960; fax:

703–358–3921; website:

www.aluminum.org.

(1) Aluminum Design Manual, Specifications and Guidelines for Aluminum Structures, Part 1–A, Sixth Edition, October 1994; IBR approved for § 3280.304(b).

(2) Aluminum Design Manual, Specifications and Guidelines for Aluminum Structures, Part 1–B, First Edition, October 1994; IBR approved for § 3280.304(b).

(d) American Forest and Paper Association (AFPA), 1101 K Street NW, Suite 700, Washington, DC 20005; telephone: 202–463–2700; website: www.afandpa.org.

(1) AFPA, Wood Structural Design Data, 1986 Edition with 1992 Revisions; IBR approved for § 3280.304(b).

(2) [Reserved]

(e) American Gas Association (AGA), 400 North Capitol Street NW, Washington, DC 20001; telephone: 202–824–7000; website: www.aga.org.

(1) AGA No. 3–87, Requirements for Gas Connectors for Connection of Fixed Appliances for Outdoor Installation, Park Trailers, and Manufactured (Mobile) Homes to the Gas Supply; IBR approved for § 3280.703(d).

(2) [Reserved]

(f) American Institute of Steel Construction (AISC), 130 East Randolph Street, Suite 2000, Chicago, IL 60601–6219; telephone: 312–670–2400; fax: 312–626–2402; website: www.aisc.org.

(1) ANSI/AISC 360–10, Specification for Structural Steel Buildings, Second Printing; February 2012 (AISC 360–10); IBR approved for §§ 3280.304(b); 3280.305(j).

(2) [Reserved]

(g) American Iron and Steel Institute (AISI), 25 Massachusetts Avenue NW, Suite 800, Washington, DC 20001; telephone: 202–452–7100; website: www.steel.org.

(1) AISI S100–12, North American Specification for the Design of Cold-Formed Steel Structural Members, 2012 Edition, 2nd Printing—June 2014, including AISI S100–12–E3 errata dated December 10, 2014; IBR approved for §§ 3280.304(b); 3280.305(j).

(2) [Reserved]

(h) American National Standards Institute (ANSI), 25 West 43rd Street, 4th Floor, New York, NY 10018; telephone: 212–642–4900; fax: 212–398–0023; website: www.ansi.org.

(1) ANSI A112.14.1–1975, Backflow Valves; IBR approved for § 3280.604(c).

(2) ANSI A112.19.5–1979, Trim for Water Closet, Bowls, Tanks, and Urinals; IBR approved for § 3280.604(c).

(3) ANSI/AITC A190.1–1992, For wood products—Structural Glued Laminated Timber; IBR approved for § 3280.304(b).

(4) ANSI A208.2–2002, Medium Density Fiberboard (MDF) For Interior Applications, approved May 13, 2002; IBR approved for § 3280.304(b).

(5) ANSI B16.18–1984, Cast Copper Alloy Solder-Joint Pressure Fittings; IBR approved for § 3280.604(c).

(6) ANSI C72.1–1972, section 4.3.1, Household Automatic Electric Storage Type Water Heaters; IBR approved for § 3280.707(d).

(7) ANSI Z21.22–1999, Relief Valves for Hot Water Supply Systems; IBR approved for §§ 3280.604(c); 3280.703(d).

(8) ANSI Z34.1–1993, Third-Party Certification Programs for Products, Processes, and Services; IBR approved for §§ 3280.403(e); 3280.405(e).

(9) ANSI Z97.1–2009, American National Standard for safety glazing materials used in buildings—safety performance specifications and methods of test, approved November 2009; IBR approved for §§ 3280.113(d); 3280.304(b); 3280.403(d); 3280.604(c); 3280.607(b); 3280.703(d).

(10) ANSI Z124.1–1987, Plastic Bathtub Units with Addendum Z124.1a–1990 and Z124.1b–1991; IBR approved for § 3280.604(c).

(11) ANSI Z124.2–1987, Plastic Shower Receptors and Shower Stalls with Addendum Z124.2a–1990; IBR approved for § 3280.604(c).

(12) ANSI Z124.3–1986, Plastic Lavatories with Addendum Z124.3a–1990; IBR approved for § 3280.604(c).

(13) ANSI Z124.4–1986, Plastic Water Closets, Bowls, and Tanks with Addenda Z124.4a–1990; IBR approved for § 3280.604(c).

(14) ANSI Z124.5–1997, Plastic Toilet (Water Closets) Seats; IBR approved for § 3280.604(c).

(15) ANSI Z124.7–1997, Prefabricated Plastic Spa Shells; IBR approved for § 3280.604(c).

(16) ANSI Z–124.9–1994, Plastic Urinal Fixtures; IBR approved for § 3280.604(c).

(i) American Society of Civil Engineers (ASCE), 1801 Alexander Bell Drive, Reston, VA 20191; telephone: 800–548–2723; website: www.asce.org.

(1) ANSI/ASCE 7–88, Minimum Design Loads for Buildings and Other Structures, IBR approved for §§ 3280.5(f); 3280.304(b); 3280.305(c).

(2) SEI/ASCE 8–02, Specification for the Design of Cold-Formed Stainless Steel Structural Members, 2002; IBR approved for §§ 3280.304(b); 3280.305(j).

(3) ASCE 19–96, Structural Applications of Steel Cables for Buildings; IBR approved for § 3280.304(b).

(j) American Society of Heating, Refrigeration and Air Conditioning

Engineers (ASHRAE), 1791 Tullie Circle NE, Atlanta, GA 30329; telephone: 404–636–8400; fax: 404–321–5478; website: www.ashrae.org/home/.

(1) 1997 ASHRAE Handbook of Fundamentals, chapters 22 through 27, (except for the following parts of this standard that are not incorporated by reference: 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), Inch-Pound Edition, 1997; IBR approved for §§ 3280.508(a) and (e); 3280.511(a).

(2) ANSI/ASHRAE Standard 62.2–2013, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, approved January 30, 2013 (ANSI/ASHRAE 62.2); IBR approved for §§ 3280.103(d) and (e); 3280.703(d).

(k) American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016–5990; telephone: 800–843–2763; website: www.asme.org/.

(1) ASME A112.1.2–1991, Air Gaps in Plumbing Systems; IBR approved for § 3280.604(c).

(2) ANSI/ASME A112.4.1–1993, Water Heater Relief Valve Drain Tubes; IBR approved for § 3280.604(c).

(3) ANSI/ASME A112.4.3–1999, Plastic Fittings for Connecting Water Closets to the Sanitary Drainage System; IBR approved for § 3280.604(c).

(4) ASME/ANSI A112.18.1M–1989, Plumbing Fixture Fittings; IBR approved for § 3280.604(c).

(5) ASME A112.18.3M–1996, Performance Requirements for Backflow Protection Devices and Systems in Plumbing Fixture Fittings; IBR approved for § 3280.604(c).

(6) ASME A112.18.6–1999, Flexible Water Connectors; IBR approved for § 3280.604(c).

(7) ASME A112.18.7–1999, Deck Mounted Bath/Shower Transfer Valves with Integral Backflow Protection; IBR approved for § 3280.604(c).

(8) ANSI/ASME A112.19.1M–1987, Enameled Cast Iron Plumbing Fixtures; IBR approved for § 3280.604(c).

(9) ANSI/ASME A112.19.2(M)–1990, Vitreous China Plumbing Fixtures; IBR approved for § 3280.604(c).

(10) ANSI/ASME A112.19.3M–1987, Stainless Steel Plumbing Fixtures (Designed for Residential Use); IBR approved for § 3280.604(c).

(11) ANSI/ASME A112.19.4(M)–1984, Porcelain Enameled Formed Steel

Plumbing Fixtures; IBR approved for § 3280.604(c).

(12) ASME A112.19.6–1995, Hydraulic Performance Requirements for Water Closets and Urinals; IBR approved for § 3280.604(c).

(13) ASME/ANSI A112.19.7M–1987, Whirlpool Bathtub Appliances; IBR approved for § 3280.604(c).

(14) ASME/ANSI A112.19.8M–1989, Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Whirlpool Bathtub Appliances; IBR approved for § 3280.604(c).

(15) ASME A112.19.9M–1991, Non-Vitreous Ceramic Plumbing Fixtures; IBR approved for § 3280.604(c).

(16) ASME A112.19.10–1994, Dual Flush Devices for Water Closets; IBR approved for § 3280.604(c).

(17) ANSI/ASME A112.21.3M–1985, Hydrants for Utility and Maintenance Use; IBR approved for § 3280.604(c).

(18) ANSI/ASME B1.20.1–2013, Pipe Threads, General Purpose (Inch), reaffirmed 2018; IBR approved for §§ 3280.604(c); 3280.703(b); 3280.705(e); 3280.706(d).

(19) ANSI/ASME B16.3–1992, Malleable Iron Threaded Fittings; IBR approved for § 3280.604(c).

(20) ANSI/ASME B16.4–1992, Gray Iron Threaded Fittings; IBR approved for § 3280.604(c).

(21) ANSI/ASME B16.15–1985, Cast Bronze Threaded Fittings, Classes 125 and 250; IBR approved for § 3280.604(c).

(22) ASME/ANSI B16.22–1989, Wrought-Copper and Copper Alloy Solder-Joint Pressure Fitting; IBR approved for § 3280.604(c).

(23) ASME B16.23–1992, Cast Copper Alloy Solder-Joint Drainage Fittings-DWV; IBR approved for § 3280.604(c).

(24) ASME/ANSI B16.26–1988, Cast Copper Alloy Fittings for Flared Copper Tubes; IBR approved for § 3280.604(c).

(25) ASME/ANSI B16.29–1986, Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings-DWV; IBR approved for § 3280.604(c).

(26) ANSI/ASME B36.10–2004, Welded and Seamless Wrought Steel Pipe, ANSI-approved June 23, 2004; IBR approved for §§ 3280.604(c); 3280.703(b); 3280.705(b); 3280.706(b).

(l) American Society of Sanitary Engineering (ASSE), 901 Canterbury, Suite A, Westlake, OH 44145; telephone: 440–835–3040; fax: 440–835–3488; website: www.asse-plumbing.org.

(1) ASSE 1001, Performance Requirements for Pipe Applied Atmospheric Type Vacuum Breakers, ANSI-approved 1990; IBR approved for § 3280.604(c).

(2) ASSE 1002 (ANSI/ASSE–1979), Performance Requirements for Water

Closet Flush Tank Fill Valves (Ballcocks), Revision 5, 1986; IBR approved for § 3280.604(c).

(3) ASSE 1006, Plumbing Requirements for Residential Use (Household) Dishwashers, ASSE/ANSI–1986; IBR approved for § 3280.604(c).

(4) ASSE 1007–1986, Performance Requirements for Home Laundry Equipment; IBR approved for § 3280.604(c).

(5) ASSE 1008–1986, Performance Requirements for Household Food Waste Disposer Units; IBR approved for § 3280.604(c).

(6) ASSE 1011–1981, Performance Requirements for Hose Connection Vacuum Breakers, ANSI-approved 1982; IBR approved for § 3280.604(c).

(7) ASSE 1014–1989, Performance Requirements for Hand-held Showers, ANSI-approved 1990; IBR approved for § 3280.604(c).

(8) ASSE 1016–2005, Performance Requirements for Automatic Compensating Valves for Individual Shower and Tub/Shower Combinations, approved January 2005; IBR approved for §§ 3280.604(c); 3280.607(b).

(9) ASSE 1017–1986, Performance Requirements for Temperature Activated Mixing Valves for Primary Domestic Use, 1986; IBR approved for § 3280.604(c).

(10) ANSI/ASSE 1019–1978, Performance Requirements for Wall Hydrants, Frost Proof Automatic Draining, Anti-Backflow Types, 1978; IBR approved for § 3280.604(c).

(11) ASSE 1023, Performance Requirements for Hot Water Dispensers, Household Storage Type Electrical, ANSI/ASSE–1979; IBR approved for § 3280.604(c).

(12) ASSE 1025, Performance Requirements for Diverters for Plumbing Faucets with Hose Spray, Anti-Siphon Type, Residential Applications, ANSI/ASSE–1978; IBR approved for § 3280.604(c).

(13) ASSE 1037–1990, Performance Requirements for Pressurized Flushing Devices (Flushometers) for Plumbing Fixtures, ANSI-approved 1990; IBR approved for § 3280.604(c).

(14) ASSE 1051, Performance Requirements for Air Admittance Valves for Plumbing Drainage Systems—Fixture and Branch Devices Revised 1996, ANSI-approved 1998; IBR approved for § 3280.604(c).

(15) ASSE 1070–2004, Performance Requirements for Water Temperature Limiting Devices, 2004; IBR approved for §§ 3280.604(c); 3280.607(b).

(m) APA—The Engineered Wood Association (APA) (formerly the American Plywood Association), 7011 South 19th Street, Tacoma, WA 98411;

telephone: 253–565–6600; fax: 253–565–7265; website: www.apawood.org.

(1) APA D510C, Panel Design Specification, copyright 2012; IBR approved for § 3280.304(b).

(2) APA E30P–1996, APA Design/Construction Guide, Residential and Commercial Structures; IBR approved for § 3280.304(b).

(3) APA E30V, Engineered Wood Construction Guide, copyright 2011; IBR approved for § 3280.304(b).

(4) APA H815G, Plywood Design Specification Supplement 5–12, Design and Fabrication of All-Plywood Beams, December 2013; IBR approved for § 3280.304(b).

(5) APA S811P, Plywood Design Specification Supplement 1–12, Design and Fabrication of Plywood Curved Panels, December 2013; IBR approved for § 3280.304(b).

(6) APA S812S, Plywood Design Specification Supplement 2–12, Design and Fabrication of Glued Plywood-Lumber Beams, December 2013; IBR approved for § 3280.304(b).

(7) APA U813M, Plywood Design Specification Supplement 3–12, Design and Fabrication of Plywood Stressed-Skin Panels, December 2013; IBR approved for § 3280.304(b).

(8) APA U814J, Plywood Design Specification Supplement 4–12, Design and Fabrication of Plywood Sandwiched Panels, December 2013; IBR approved for § 3280.304(b).

(9) APA Y510, Plywood Design, January 1997; IBR approved for § 3280.304(b).

(n) ASTM, International (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; telephone: 877–909–2786 (USA & Canada); fax: 610–832–9555; website: www.astm.org.

(1) ASTM A53/A53M–12, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless, approved March 1, 2012; IBR approved for §§ 3280.604(c); 3280.703(b).

(2) ASTM A74–92, Standard Specification for Cast Iron Soil Pipe and Fittings, 1992; IBR approved for § 3280.604(c).

(3) ASTM A539–99, Standard Specification for Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines, 1999; IBR approved for §§ 3280.703(b); 3280.705(b); 3280.706(b).

(4) ASTM B42–10, Standard Specification for Seamless Copper Pipe, Standard Sizes, approved October 1, 2010; IBR approved for §§ 3280.604(c); 3280.703(c).

(5) ASTM B43–91, Standard Specification for Seamless Red Brass Pipe, Standard Sizes, 1991; IBR

approved for §§ 3280.604(c); 3280.705(b).

(6) ASTM B88–14, Standard Specification for Seamless Copper Water Tube, approved September 1, 2014; IBR approved for §§ 3280.604(c); 3280.703(c); 3280.705(b); 3280.706(b).

(7) ASTM B251–10, Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube, approved October 1, 2010; IBR approved for §§ 3280.604(c); 3280.703(c).

(8) ASTM B280–13, Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service, approved April 1, 2013; IBR approved for §§ 3280.703(c); 3280.705(b); 3280.706(b).

(9) ASTM B306–92, Standard Specification for Copper Drainage Tube (DWV), 1992; IBR approved for § 3280.604(c).

(10) ASTM C564–97, Standard Specification for Rubber Gaskets for Case Iron Soil Pipe and Fittings, approved December 10, 1997; IBR approved for §§ 3280.604(c); 3280.611(d).

(11) ASTM C920–02, Standard Specification for Elastomeric Joint Sealants, approved January 10, 2002; IBR approved for § 3280.611(d).

(12) ASTM C1396/C1396M–14a, Standard Specification for Gypsum Board, approved October 1, 2014; IBR approved for § 3280.304(b).

(13) ASTM D781–68 (Reapproved 1973), Standard Test Methods for Puncture and Stiffness of Paperboard, and Corrugated and Solid Fiberboard, 1973; IBR approved for §§ 3280.304(b); 3280.305(g).

(14) ASTM D2235–88, Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings, 1988; IBR approved for § 3280.604(c).

(15) ASTM D2564–91a, Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems, 1991; IBR approved for § 3280.604(c).

(16) ASTM D2661–91, Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings, 1991; IBR approved for § 3280.604(c).

(17) ASTM D2665–91b, Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings, 1991; IBR approved for § 3280.604(c).

(18) ASTM D2846–92, Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems, 1992; IBR approved for § 3280.604(c).

(19) ASTM D3309–92a, Standard Specification for Polybutylene (PB) Plastic Hot- and Cold-Water Distribution Systems, 1992; IBR approved for § 3280.604(c).

(20) ASTM D3311–92, Standard Specification for Drain, Waste, and Vent (DWV) Plastic Fittings Patterns, 1992; IBR approved for § 3280.604(c).

(21) ASTM D3679–09a, Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding, approved November 1, 2009; IBR approved for §§ 3280.304(b); 3280.309(b).

(22) ASTM D3953–97, Standard Specification for Strapping, Flat Steel, and Seals, approved April 10, 1997; IBR approved for §§ 3280.304(b); 3280.306(g).

(23) ASTM D4442–07, Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials, approved November 15, 2007; IBR approved for § 3280.304(b).

(24) ASTM D4444–13, Standard Test Method for Laboratory Standardization and Calibration of Hand-Held Moisture Meters, approved April 1, 2013; IBR approved for § 3280.304(b).

(25) ASTM D4635–01, Standard Specification for Polyethylene Films Made from Low-Density Polyethylene for General Use and Packaging Applications, approved June 10, 2001; IBR approved for § 3280.611(d).

(26) ASTM D4756–06, Standard Practice for Installation of Rigid Poly(Vinyl Chloride) (PVC) Siding and Soffit, approved April 1, 2006; IBR approved for §§ 3280.304(b); 3280.309(c).

(27) ASTM D6007–14, Standard Test Method for Determining Formaldehyde Concentrations in Air from Wood Products Using a Small Air Chamber, approved October 1, 2014; IBR approved for § 3280.406(b).

(28) ASTM D7254–07, Standard Specification for Polypropylene (PP) Siding, January 1, 2007; IBR approved for §§ 3280.304(b); 3280.309(c).

(29) ASTM E84–01, Standard Test Method for Surface Burning Characteristics of Building Materials, 2001; IBR approved for § 3280.203(a).

(30) ASTM E90–09, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements, approved July 1, 2009; IBR approved for § 3280.115(b).

(31) ASTM E96/E96M–13, Standard Test Methods for Water Vapor Transmission of Materials, approved November 1, 2013; IBR approved for § 3280.504(a) and (c).

(32) ASTM E119–14, Standard Test Methods for Fire Tests of Building Construction and Materials, approved

October 1, 2014; IBR approved for §§ 3280.215(a) and (d); 3280.304(b); 3280.1003(a).

(33) ASTM E162–94, Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source, 1994; IBR approved for § 3280.203(a).

(34) ASTM E492–09, Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine, approved April 1, 2009; IBR approved for § 3280.115(b).

(35) ASTM E773–97, Standard Test Methods for Accelerated Weathering of Sealed Insulating Glass Units, 1997; IBR approved for § 3280.403(d).

(36) ASTM E774–97, Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units, 1997; IBR approved for § 3280.403(d).

(37) ASTM E814–13, Standard Test Method for Fire Tests of Penetration Firestop Systems, approved November 1, 2013; IBR approved for § 3280.215(d).

(38) ASTM E1333–14, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Air Chamber, approved October 1, 2014; IBR approved for § 3280.406(b).

(39) ASTM F628–91, Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40, Plastic Drain, Waste, and Vent Pipe with a Cellular Core, 1991; IBR approved for § 3280.604(c).

(40) ASTM F876–10, Standard Specification for Crosslinked Polyethylene (PEX) Tubing, approved February 10, 2010; IBR approved for § 3280.604(c).

(41) ASTM F877–07, Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems, approved February 1, 2007; IBR approved for § 3280.604(c).

(o) American Wood Council (AWC), 222 Catocin Circle SE, Suite 201, Leesburg, VA 20175; telephone: 202–463–2766; website: www.awc.org.

(1) AWC NDS–2015, National Design Specifications for Wood Construction with Supplement; IBR approved for §§ 3280.215(a); 3280.304(b);

(i) ANSI/AWC NDS–2015, 2015 Edition, ANSI-approved September 30, 2014; and

(ii) NDS Supplement, Design Values for Wood Construction, 2015 Edition, November 2014.

(2) Span Tables for Joists and Rafters: American Softwood Lumber Standard (PS 20–10) Sizes, 2012 Edition (AWC–2012—Span Tables for Joists and Rafters); IBR approved for § 3280.304(b).

(3) Design Values for Joists and Rafters, Supplement to Span Tables for Joists and Rafters (2012 Edition), March 2013 (AWC–2012 Design Values for Joists and Rafters); IBR approved for § 3280.304(b).

(p) Cast Iron Soil Pipe Institute (CISPI), 1064 Delaware Avenue SE, Atlanta, GA 30316; telephone: 404–622–0073; fax: 404–973–2845; website: www.cispi.org/.

(1) CISPI–301–90, Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications; IBR approved for § 3280.604(c).

(2) CISPI–HSN–85, Specification for Neoprene Rubber Gaskets for HUB and Spigot Cast Iron Soil Pipe and Fittings; IBR approved for §§ 3280.604(c), 3280.611(d).

(q) Composite Panel Association (formerly the American Hardboard Association), 19465 Deerfield Ave, Suite 306, Leesburg, VA 20176; telephone: 703–724–1128; website: compositepanel.org.

(1) ANSI A135.4–2012, Basic Hardboard, approved June 8, 2012; IBR approved for § 3280.304(b).

(2) ANSI A135.5–2012, Prefinished Hardboard Paneling, approved March 29, 2012; IBR approved for § 3280.304(b).

(3) ANSI A135.6–2012 (R2020), Engineered Wood Siding, Reaffirmation approved March 13, 2020; IBR approved for § 3280.304(b).

(4) ANSI A208.1–2009, Particleboard, approved February 2, 2009; IBR approved for § 3280.304(b).

(r) CSA Group, formerly known as the Canadian Standards Association (CSA), 178 Rexdale Boulevard, Toronto, ON, M9W 1R3, Canada; telephone: 216–524–4990; website: www.csagroup.org.

(1) AAMA/WDMA/CSA 101/I.S.2/A440–17, North American Fenestration Standard/Specification for Windows, Doors, and Skylights, revised September 2018; IBR approved for §§ 3280.304(b); 3280.403(b) and (e); 3280.404(b) and (e); 3280.405(b) and (e).

(2) ANSI LC 1–2014/CSA 6.26–2014, Fuel gas piping systems using corrugated stainless steel tubing, Published March 2014 (ANSI LC 1); IBR approved for § 3280.705(b).

(3) ANSI Z21.1–2016/CSA 1.1–2016, household cooking gas appliances, Published February 2016 (ANSI Z21.1); IBR approved for § 3280.703(a).

(4) ANSI Z21.5.1–2015/CSA 7.1–2015, gas clothes dryers, volume I, type 1 clothes dryers, Published January 2015 (ANSI Z21.5.1); IBR approved for § 3280.703(a).

(5) ANSI Z21.10.1–2014/CSA 4.1–2014, Gas water heaters, volume I, storage water heaters with input ratings of 75,000 BTU per hour or less, Published November 2014 (ANSI Z21.10.1); IBR approved for §§ 3280.703(a); 3280.707(d).

(6) ANSI Z21.10.3–2014/CSA 4.3–2014, Gas-fired water heaters, volume III, storage water heaters with input ratings above 75,000 BTU per hour, circulating and instantaneous, Published August 2014 (ANSI Z21.10.3); IBR approved for § 3280.703(a).

(7) ANSI Z21.15–2009 (reaffirmed 2019)/CSA 9.1–2009 (reaffirmed 2019), American National Standard/CSA Standard for Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves, Second Edition—2009, Published July 2009 (ANSI Z21.15); IBR approved for §§ 3280.703(c); 3280.705(c) and (l).

(8) ANSI Z21.19–2014/CSA 1.4–2014, Refrigerators using gas fuel, Published May 2014 (ANSI Z21.19); IBR approved for § 3280.703(a).

(9) ANSI Z21.20–2014 (reaffirmed 2019)/CAN/CSA C22.2 No.60730–2–5–14 (reaffirmed 2019), Automatic electrical controls for household and similar use—Part 2–5: Particular requirements for automatic electrical burner control systems, Reprinted September 30, 2019 (ANSI Z21.20); IBR approved for § 3280.703(d).

(10) ANSI Z21.21–2012/CSA 6.5–2012, Automatic valves for gas appliances, Fourth Edition—2012, Published November 2012 (ANSI Z21.21); IBR approved for § 3280.703(d).

(11) ANSI Z21.23, Gas Appliance Thermostats and addenda; IBR approved for § 3280.703(d):

(i) ANSI Z21.23–2000, Tenth Edition—2000, ANSI-approved September 27, 2000;

(ii) ANSI Z21.23a–2003, Addenda to the Tenth Edition of Gas Appliance Thermostats, ANSI-approved September 17, 2003; and

(iii) ANSI Z21.23b–2005, Addenda to the Tenth Edition of ANSI Z21.23–2000 and Addenda Z21.23a–2003: Gas Appliance Thermostats, ANSI-approved March 9, 2005.

(12) ANSI Z21.24–2006/CSA 6.10–2006 (reaffirmed 2011), Connectors for Gas Appliances, Third Edition—2006, Published February 2007 (ANSI Z21.24); IBR approved for § 3280.703(c).

(13) ANSI Z21.40.1–1996/CGA 2.91–M96, Gas-Fired, Heat Activated Air Conditioning and Heat Pump Appliances; IBR approved for §§ 3280.703(a); 3280.714(a).

(14) ANSI Z21.47–2012/CSA 2.3–2012, Gas-fired central furnaces, Sixth Edition—2012, ANSI-approved March

27, 2012 (ANSI Z21.47); IBR approved for § 3280.703(a).

(15) ANSI Z21.75–2007/CSA 6.27–2007 (reaffirmed 2012), Connectors for Outdoor Gas Appliances And Manufactured Homes, Second Edition, Published 2007 (ANSI Z21.75); IBR approved for § 3280.703(a).

(s) Decorative Hardwoods Association (formerly HPVA), 42777 Trade West Drive, Sterling, VA 20166; telephone: 703–435–2900; fax: 703–435–2537; website: www.decorativehardwoods.org.

(1) ANSI/HPVA HP–1–2009, American National Standard for Hardwood and Decorative Plywood, approved January 26, 2010; IBR approved for § 3280.304(b).

(2) HP–SG–96, Structural Design Guide for Hardwood Plywood Wall Panels, revised 1996; IBR approved for § 3280.304(b).

(t) FS—Federal Specifications, General Services Administration, Specifications Branch, Room 6039, GSA Building, 7th and D Streets SW, Washington, DC 20407.

(1) FS WW–P–541E/GEN–1980, Plumbing Fixtures (General Specifications); IBR approved for § 3280.604(c).

(2) FS ZZ–R–765B–1970, Silicone Rubber, (with 1971 Amendment); IBR approved for § 3280.611(d).

(3) TT–P–1536A, Plumbing Fixture Setting Compound, July 8, 1975; IBR approved for § 3280.604(b).

(u) Fenestration and Glazing Industry Alliance (FGIA) (formerly known as American Architectural Manufacturers Association (AAMA)), 1900 E Golf Road, Schaumburg, Illinois 60173; website: www.fgiaonline.org.

(1) AAMA 1503.1–88, Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections; IBR approved for § 3280.508(e).

(2) AAMA 1600/I.S.7–00, Voluntary Specification for Skylights, 2003; IBR approved for § 3280.305(c).

(3) AAMA 1701.2–12, Voluntary Standard for Utilization in Manufactured Housing for Primary Windows and Sliding Glass Doors, published November 2012; IBR approved for §§ 3280.403(b) and (e); 3280.404(b) and (e).

(4) AAMA 1702.2–12, Voluntary Standard for Utilization in Manufactured Housing for Swinging Exterior Passage Doors, published November 2012, including errata dated February 16, 2015 and March 29, 2017; IBR approved for §§ 3280.403(e); 3280.405(b) and (e).

(5) AAMA 1704–12, Voluntary Standard Egress Window Systems for Utilization in Manufactured Housing,

published November 2012; IBR approved for § 3280.404(b) and (e).
 (v) HUD User, 11491 Sunset Hills Road, Reston, VA 20190-5254; telephone: 800-245-2691; website: www.huduser.gov.

(1) HUD User No. 0005945, Overall U-values and Heating/Cooling Loads—Manufactured Homes, February 1992; IBR approved for § 3280.508(b).

(2) [Reserved]

(w) IIT Research Institute (IITRI), 10 West 35th Street, Chicago, IL 60616; telephone: 312-567-4000; website: www.iitri.org/.

(1) IITRI Fire and Safety Research Project J-6461 “Development of Mobile Home Fire Test Methods to Judge the Fire-Safe Performance of Foam Plastic Sheathing and Cavity Insulation”, 1979; IBR approved for § 3280.207(a).

(2) [Reserved]

(x) International Association of Plumbing and Mechanical Officials (IAPMO), 4755 East Philadelphia Street, Ontario, CA 91716; telephone: 909-472-4100; fax: 909-472-4150; website: www.iapmo.org.

(1) IAPMO PS 2-89, Material and Property Standard for Cast Brass and Tubing P-Traps. 1989; IBR approved for § 3280.604(c).

(2) IAPMO PS 4-90, Material and Property Standard for Drains for Prefabricated and Precast Showers, 1990; IBR approved for § 3280.604(c).

(3) IAPMO PS 5-84, Material and Property Standard for Special Cast Iron Fittings, 1984; IBR approved for § 3280.604(c).

(4) IAPMO PS 9-84, Material and Property Standard for Diversion Tees and Twin Waste Elbow, 1984; IBR approved for § 3280.604(c).

(5) IAPMO PS 14-89, Material and Property Standard for Flexible Metallic Water Connectors, 1989; IBR approved for § 3280.604(c).

(6) IAPMO PS 23-89, Material and Property Standard for Dishwasher Drain Airgaps, 1989; IBR approved for § 3280.604(c).

(7) IAPMO PS 31-91, Material and Property Standards for Backflow Prevention Assemblies, 1989; IBR approved for § 3280.604(c).

(8) IAPMO TS 9-2003, Standard for Gas Supply Connectors for Manufactured Homes, revised 2003; IBR approved for § 3280.703(c).

(9) IAPMO TSC 22-85, Standard for Porcelain Enameled Formed Steel Plumbing Fixtures; IBR approved for § 3280.604(c).

(y) International Code Council Evaluation Service (ICC-ES), 3060 Saturn Street, Suite 100, Brea, CA 92821; telephone: 800-423-6587; fax: 562-695-4694; website: www.icc-es.org.

(1) ESR 1539, ICC-ES Evaluation Report; Power Driven Staples and Nails, reissued June 2014; IBR approved for § 3280.304(b).

(2) [Reserved]

(z) International Organization for Standardization, Chemin de Blandonnet 8, CP 401—1214 Vernier, Geneva, Switzerland; telephone: +41 22 749 01 11; website: www.iso.org.

(1) ISO/IEC 17065:2012(E) Conformity assessment—requirements for bodies certifying products, processes and services, approved September 15, 2012; IBR approved for §§ 3280.403(e); 3280.404(e); 3280.405(e).

(2) [Reserved]

(aa) Military Specifications and Standards, Naval Publications and Forms Center (MIL), 5801 Tabor Avenue, Philadelphia, PA 19120; website: www.dsp.dla.mil/.

(1) MIL-L-10547E-1975, Liners, Case, and Sheet, Overwrap; Water-Vapor Proof or Waterproof, Flexible, 1975; IBR approved for § 3280.611(d).

(2) [Reserved]

(bb) National Electrical Manufacturers Association (NEMA), 1300 North 17th Street, Suite 1752, Arlington, VA 22209; telephone: 703-841-3200; fax: 703-841-5900; website: www.nema.org/Pages/default.aspx.

(1) ANSI/NEMA WD-6-1997 Wiring Devices-Dimensional Specifications, 1997; IBR approved for § 3280.803(f).

(2) [Reserved]

(cc) National Fenestration Rating Council (NFRC), 6305 Ivy Lane, Suite 140, Greenbelt, MD 20770; telephone: 301-589-1776; fax: 301-589-3884; website: www.nfrc.org.

(1) NFRC 100, Procedure for Determining Fenestration Product U-factors, 1997 Edition, 1997; IBR approved for § 3280.508(e).

(2) [Reserved]

(dd) National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269; telephone: 617-770-3000; fax: 617-770-0700; website: www.nfpa.org.

(1) NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, 2010 Edition, approved August 26, 2009; IBR approved for § 3280.214(b), (e) and (o).

(2) NFPA 31, Standard for the Installation of Oil-Burning Equipment, 2011 Edition, approved January 3, 2011; IBR approved for §§ 3280.703(d); 3280.707(f).

(3) NFPA 54/ANSI Z223.1, National Fuel Gas Code, 2015 Edition, approved September 3, 2014; IBR approved for § 3280.703(d).

(4) NFPA 58, Liquefied Petroleum Gas Code, 2014 Edition, approved August 1, 2013; IBR approved for § 3280.703(d).

(5) NFPA 70, National Electrical Code, 2014 Edition, approved August 21, 2013; IBR approved for §§ 3280.607(c); 3280.801(b); 3280.803(k); 3280.804(a) and (k); 3280.805(a); 3280.806(a) and (d); 3280.807(c); 3280.808(a), (l), and (p); 3280.810(b); 3280.811(b).

(6) NFPA 90B, Standard for the Installation of Warm Air Heating and Air-Conditioning Systems, 2015 Edition, approved May 19, 2015; IBR approved for § 3280.703(d).

(7) NFPA 220, Standard on Types of Building Construction, Chapter 2: definitions of “limited combustible” and “noncombustible material”, 1995 Edition; IBR approved for § 3280.202.

(8) NFPA 253, Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source, 2000; IBR approved for § 3280.207(c).

(9) NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials, 1996; IBR approved for §§ 3280.203(a); 3280.207(a).

(10) NFPA 720, Standard for Installation of Carbon Monoxide Detection (CO) Detection and Warning Equipment, 2015 Edition, Copyright 2014; IBR approved for § 3280.211(b).

(ee) U.S. Department of Commerce, National Institute of Standards and Technology (NIST), Office of Engineering Standards, Room A-166, Technical Building, Washington, DC 20234 and Voluntary Product Division, 100 Bureau Drive, Stop 2100, Gaithersburg, MD 20899-2100; telephone: 301-975-4000; fax: 301-975-4715; website: www.nist.gov.

(1) Voluntary Product Standard PS 1-09, Structural Plywood (With Typical APA Trademarks), effective May 1, 2009 (NIST PS 1); IBR approved for § 3280.304(b).

(2) Voluntary Product Standard PS 2-04, Performance Standard for Wood-Based Structural-Use Panels, December 2004 (NIST PS 2); IBR approval for § 3280.304(b).

(ff) National Sanitation Foundation (NSF), 789 North Dixboro Road, Ann Arbor, MI 48105; telephone: 734-769-8010 fax: 734-769-0109; website: www.nsf.org.

(1) ANSI/NSF 14-1990, Plastic Piping Components and Related Materials; IBR approved for § 3280.604(c).

(2) ANSI/NSF 24-1988, Plumbing System Components for Manufactured Homes and Recreational Vehicles; IBR approved for § 3280.604(c).

(3) ANSI/NSF 61-2001, Drinking Water System Components-Health Effects; IBR approved for § 3280.604(b).

(gg) Resources, Applications, Designs, & Controls (RADCO), 3220 East 59th

Street, Long Beach, CA 90805; telephone: 562-272-7231; fax: 562-529-7513; website: www.radcoinc.com.

(1) RADCO DS-010-91, Decorative Gas Appliances for Installation in Solid Fuel Burning Fireplaces, May 1991; IBR approved for § 3280.703(a).

(2) [Reserved]

(hh) Society of Automotive Engineers (SAE), 400 Commonwealth Drive, Warrendale, PA 15096; telephone: 724-776-0790; website: www.sae.org/.

(1) SAE J533 (REV SEP 2007), (R) Flares for Tubing, revised September 2007; IBR approved for §§ 3280.703(d); 3280.705(f).

(2) [Reserved]

(ii) Steel Joist Institute (SJI), 234 West Cheves Street, Florence, SC 29501; telephone: 843-407-4091; website: www.steeljoist.org.

(1) SJI 1994, Standard Specifications Load Tables and Weight Tables for Steel Joists and Girders, Fortieth Edition, 1994; IBR approved for § 3280.304(b).

(2) [Reserved]

(jj) Truss Plate Institute (TPI), 2670 Crain Highway, Suite 203, Waldorf, MD 20601; telephone: 240-587-5582; fax: 866-501-4012; website: www.tpinst.org.

(1) TPI 1, National Design Standard for Metal Plate Connected Wood Truss Construction, Commentary, and Appendices, copyright 2008; IBR approved for § 3280.304(b):

(i) ANSI/TPI 1-2007;

(ii) TPI 1-2007 Commentary and Appendices.

(2) [Reserved]

(kk) Underwriters' Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062; telephone: 847-272-8800; fax: 847-509-6257; website: www.ul.com.

(1) UL 94-1996, with 2001 revisions, Test for Flammability of Plastic Materials for Parts in Devices and Appliances, Fifth Edition; IBR approved for § 3280.715(e).

(2) UL 103, Standard for Safety, Factory-Built Chimneys for Residential Type and Building Heating Appliances, Eleventh Edition, dated October 15, 2010; IBR approved for § 3280.703(d).

(3) UL 109, Tube Fittings for Flammable and Combustible Fluids, Refrigeration Service, and Marine Use, Sixth Edition, dated June 19, 1997, including revisions through January 11, 2005; IBR approved for § 3280.703(d).

(4) UL 127-1996, with 1999 revisions, Factory-Built Fireplaces, Seventh Edition; IBR approved for § 3280.703(d).

(5) UL 174, Standard for Safety Household Electric Storage Tank Water Heaters, Eleventh Edition, dated April 29, 2004, including revisions through December 15, 2016; IBR approved for § 3280.703(a).

(6) UL 181, Standard for Safety Factory-Made Air Ducts and Air

Connectors, Eleventh Edition, dated July 25, 2013, including revisions through April 18, 2017; IBR approved for §§ 3280.702, 3280.703(d); 3280.715(a) and (e).

(7) UL 181A, Standard for Safety Closure Systems for Use with Rigid Air Ducts, Fourth Edition, dated January 8, 2013, including revisions through March 22, 2017; IBR approved for §§ 3280.703(d); 3280.715(c).

(8) UL 181B, Standard for Safety Closure Systems for use with Flexible Air Ducts and Air Connectors, First Edition, 1995, with 1998 revisions; IBR approved for §§ 3280.703(d); 3280.715(c).

(9) UL 217, Single and Multiple Station Smoke Alarms, Fifth Edition, dated January 4, 1999; IBR approved for §§ 3280.209(a); 3280.211(a).

(10) UL 263, Standard for Safety Fire Tests of Building Construction and Materials, Fourteenth Edition, dated June 21, 2011, including revisions through January 31, 2019; IBR approved for § 3280.215(a) and (d).

(11) UL 268, Smoke Detectors for Fire Protective Signaling Systems, Fourth Edition, dated December 30, 1996, including revisions through January 4, 1999; IBR approved for §§ 3280.209(a); 3280.703(a).

(12) UL 307A, Liquid Fuel Burning Heating Appliances for Manufactured Homes and Recreational Vehicles, Eighth Edition, dated February 25, 2009; IBR approved for §§ 3280.703(a); 3280.707(f).

(13) UL 307B, Gas Burning Heating Appliances for Manufactured Homes and Recreational Vehicles, Fifth Edition, dated October 31, 2006, including revisions through September 17, 2013; IBR approved for § 3280.703(a).

(14) UL 311, Roof Jacks for Manufactured Homes and Recreational Vehicles, Eighth Edition, 1994, with 1998 revisions; IBR approved for § 3280.703(d).

(15) UL 441, Gas Vents, Tenth Edition, dated March 5, 2010, including revisions through June 12, 2014; IBR approved for § 3280.703(d).

(16) UL 499, Standard for Safety Electric Heating Appliances, Fourteenth Edition, dated November 7, 2014, including revisions through February 23, 2017; IBR approved for § 3280.703(a).

(17) UL 569, Standard for Safety Pigtails and Flexible Hose Connectors for LP-Gas, 2013; IBR approved for §§ 3280.703(d); 3280.705(l).

(18) UL 737, Fireplace Stoves, Eighth Edition, 1996, with 2000 revisions; IBR approved for § 3280.703(d).

(19) UL 923 Microwave Cooking Appliances, Fifth Edition, May 23, 2002; IBR approved for § 3280.204(c).

(20) UL 1042, Standards for Safety Electric Baseboard Heating Equipment, Fifth Edition, dated August 31, 2009, including revisions through December 14, 2016; IBR approved for § 3280.703(a).

(21) UL 1096, Electric Central Air Heating Equipment, Fourth Edition, 1986, with revisions July 16, 1986, and January 30, 1988; IBR approved for § 3280.703(a).

(22) UL 1479, Fire Tests of Penetration Firestops, Fourth Edition, dated June 10, 2015; IBR approved for § 3280.215(d).

(23) UL 1482, Solid-Fuel Type Room Heaters, Fifth Edition, 1996, with 2000 revisions; IBR approved for § 3280.703(d).

(24) UL 2021-1997, Fixed and Location-Dedicated Electric Room Heaters, Second Edition, with 1998 revisions; IBR approved for § 3280.703(a).

(25) UL 2034, Standard for Safety Single and Multiple Station Carbon Monoxide Alarms, Fourth Edition, dated March 31, 2017; IBR approved for §§ 3280.209(a); 3280.211(a); 3280.703(a).

(26) UL 60335-2-40-2012, Standard for Safety: Household and Similar Electrical Appliances—Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers, First Edition, dated November 30, 2012; IBR approved for § 3280.703(a).

(ll) Underwriters' Laboratories of Canada (ULC), 7 Underwriters Road, Toronto, Ontario, Canada M1 R 3A9; telephone: 866-937-3852; fax: 416-757-8727; website: www.ul.com/canada/eng/pages/.

(1) CAN/ULC S102.2-M88, Standard Method of Test for Surface Burning Characteristics of Floor Coverings and Miscellaneous Materials and Assemblies, Fourth Edition, April 1988; IBR approved for § 3280.207(b).

(2) [Reserved]

(mm) Window and Door Manufacturers Association (WDMA), 2001 K Street NW, 3rd Floor North, Washington, DC 20006; telephone: 202-367-1157; website: www.wdma.com.

(1) WDMA I.S.4-09, Industry Specification for Preservative Treatment for Millwork, copyright 2009; IBR approved for § 3280.405(c).

(2) [Reserved]

■ 4. Amend § 3280.5 by revising the first sentence of the introductory text to read as follows:

§ 3280.5 Data plate.

Each dwelling unit of a manufactured home must bear a data plate affixed in a permanent manner near the main electrical panel or other readily accessible and visible location. * * *

■ 5. Revise § 3280.102 to read as follows:

§ 3280.102 Definitions.

Air, exhaust means air discharged from any space to the outside by an exhaust system.

Air, outdoor means air from outside the building taken into a ventilation system or air from outside the building that enters a space through infiltration or natural ventilation openings.

Exhaust system means one or more exhaust fans that remove air from the building, causing outdoor air to enter by ventilation inlets or normal leakage paths through the building envelope.

Gross floor area means all space, wall to wall, including recessed entries not to exceed five (5) square feet and areas under built-in vanities and similar furniture. When the ceiling height is less than that specified in § 3280.104, the floor area under such ceilings must not be included in the gross floor area. Floor area of closets must also not be included in the gross floor area.

Habitable room means a room or enclosed floor space arranged for living, eating, food preparation, or sleeping purposes not including bathrooms, foyers, hallways, and other accessory floor space.

Laundry area means an area containing or designed to contain a laundry tray, clothes washer and/or clothes dryer.

Mechanical ventilation means the active process of supplying air to or removing air from an indoor space by powered equipment such as motor-driven fans and blowers but not by devices such as wind-turbine ventilators and mechanically operated windows.

Natural ventilation means ventilation occurring as a result of natural forces, such as wind pressure or differences in air density, through intentional openings such as open windows or doors.

Supply system means one or more fans that supply outdoor air to the building, causing indoor air to leave by normal air leakage through the building envelope.

Ventilation means the process of supplying outdoor air to or removing indoor air from the manufactured home by natural or mechanical means. Such air may or may not have been conditioned.

■ 6. Amend § 3280.103 by:

■ a. Revising paragraphs (b) introductory text, (b)(1) and (3), (c)(2) and (3), and (d); and

■ b. Adding paragraph (e).

The revisions and addition read as follows:

§ 3280.103 Light and ventilation.

(b) *Whole-house ventilation.* Each dwelling unit of a manufactured home must be provided with a whole-house mechanical ventilation having the capability to provide a minimum capacity of 0.035 ft³/min/ft² 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. The following criteria must be adhered to:

(1) The ventilation capacity must be provided by a mechanical ventilation system or a combination natural and mechanical ventilation system.

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

(c) * * *

(2) Kitchens must be provided with a local exhaust system that is capable of exhausting 100 cfm to the outside of the home. The local exhaust system must be located as close as possible to the range or cook top, but in no case farther than 3 feet horizontally from the range or cooktop.

(3) Each bathroom and separate toilet compartment must be provided with a local exhaust system capable of exhausting 50 cfm to the outside of the home. A separate toilet compartment may be provided with 1.5 square feet of openable glazed area in place of a local exhaust system, except in Uo value Zone 3.

(d) *Optional ventilation provisions.* As an option to complying with the provisions of paragraphs (b) and (c) of this section, ventilation systems complying with ANSI/ASHRAE 62.2 (incorporated by reference, see § 3280.4) may be used.

(e) *Airflow rating.* During the design stage, the airflow rating at a pressure of

0.25 inch water column may be used, provided the duct sizing meets the prescriptive requirements of table 5.3 in ANSI/ASHRAE 62.2 (incorporated by reference, see § 3280.4) or ventilation system manufacturer's design criteria.

■ 7. Amend § 3280.105 by revising paragraphs (a) introductory text, (a)(2)(i), and (b)(2) to read as follows:

§ 3280.105 Exit facilities; exterior doors.

(a) *Number and location of exterior doors.* Each dwelling unit of a manufactured home must have a minimum of two exterior doors located remotely from each other.

(2) * * *

(i) Both of the required doors must not be in the same room. Rooms are defined by their use or purpose.

(b) * * *

(2) All exterior swinging doors must provide a minimum 28 inch wide by 74 inch high clear opening. Door seals and/or door stops are permitted to reduce the opening, either vertically or horizontally, by a maximum of one inch, except for the one egress door where door seals and/or door stops are not permitted to reduce the opening. All exterior sliding glass doors must provide a minimum 28 inch wide by 72 inch high clear opening. At least one exterior egress door must provide a minimum of 32 inch wide by 74 inch high clear opening and door seals and/or door stops are not permitted to reduce the opening.

■ 8. Amend § 3280.109 by revising paragraph (a) to read as follows:

§ 3280.109 Room requirements.

(a) Each dwelling unit of a manufactured home must have at least one living area with a minimum of 150 square feet of gross floor area.

■ 9. Revise § 3280.112 to read as follows:

§ 3280.112 Hallways.

Hallways must have a minimum horizontal dimension of 28 inches measured from the interior finished surface to the interior finished surface of the opposite wall. For manufactured homes with 14 feet of inside width or more, hallways must have a minimum horizontal dimension of 30 inches measured from the interior finished surface to the interior finished surface of the opposite wall. When appliances are installed in a laundry area, the measurement must be from the front of the appliance to the opposite finished

interior surface. When appliances are not installed and a laundry area is provided, the area must have a minimum clear depth of 27 inches in addition to the 28 inches, or 30 inches for manufactured homes with 14 feet of inside width or greater, required for passage. In addition, a notice of the available clearance for washer/dryer units must be posted in the laundry area. Minor protrusions into the minimum hallway width by doorknobs, trim, smoke alarms or light fixtures are permitted.

- 10. Amend § 3280.113 by revising paragraph (d) to read as follows:

§ 3280.113 Glass and glazed openings.

* * * * *

(d) Safety glazing is any glazing material capable of meeting the requirements of Consumer Product Safety Commission 16 CFR part 1201, or ANSI Z97.1 (incorporated by reference, see § 3280.4).

* * * * *

- 11. Add § 3280.115 to subpart B to read as follows:

§ 3280.115 Sound transmission between multi-dwelling unit manufactured homes.

(a) *Scope.* This section applies to common interior walls, partitions, and floor/ceiling assemblies between adjacent dwelling units.

(b) *Air-borne sound.* Walls, partitions, and floor/ceiling assemblies between stories separating dwelling units from each other must have a sound transmission class (STC) of not less than 34 for air-borne noise when tested in accordance with ASTM E90 (incorporated by reference, see § 3280.4) or calculated. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating, or exhaust ducts must be sealed, lined, insulated or otherwise treated to maintain the required ratings. This requirement does not apply to dwelling unit entrance doors; however, such doors must be tight fitting to the frame and sill.

(c) *Structure-borne sound.* Floor/ceiling assemblies between stories separating dwelling units must have an impact insulation class (IIC) rating of not less than 34 when tested in accordance with ASTM E492 (incorporated by reference, see § 3280.4).

- 12. Amend § 3280.203 by revising paragraph (c)(1)(ii) to read as follows:

§ 3280.203 Flame spread limitations and fire protection requirements.

* * * * *

(c) * * *

(1) * * *

(ii) Exposed bottoms and sides of kitchen cabinets as required by § 3280.204 except that non-horizontal surfaces above the horizontal plane formed by the bottom of the range hood are not considered exposed;

* * * * *

- 13. Amend § 3280.204 by revising the first sentence of paragraph (a) and adding paragraph (f) to read as follows:

§ 3280.204 Kitchen cabinet protection.

(a) The exposed bottom and sides of combustible kitchen cabinets over cooking ranges to a horizontal distance of 6 inches from the outside edge of the cooking range must be protected with at least $\frac{5}{16}$ inch thick gypsum board or equivalent limited combustible material.

* * * * *

(f) Range hood finish materials must be installed with at least $\frac{5}{16}$ inch thick gypsum board or equivalent limited combustible material between the metal range hood and finish materials. Except for sealants and other trim materials 2 inches or less in width, finish materials shall have a flame spread rating not exceeding the Flame Spread Index of 200.

- 14. Amend § 3280.209 by revising paragraph (a) read as follows:

§ 3280.209 Smoke alarm requirements.

(a) *Labeling.* Each smoke alarm required under paragraph (b) of this section must conform with the requirements of UL 217 (incorporated by reference, see § 3280.4) or UL 268 (incorporated by reference, see § 3280.4), and must bear a label to evidence conformance. Combination smoke and carbon monoxide alarms shall be listed and must bear a label to evidence conformance with UL 217 and UL 2034.

* * * * *

- 15. Amend § 3280.211 by revising paragraph (a) to read as follows:

§ 3280.211 Carbon monoxide alarm requirements.

(a) *Labeling.* Carbon monoxide alarms shall be listed and must bear a label to evidence conformance with UL 2034 (incorporated by reference, see § 3280.4). Combination carbon monoxide and smoke alarms shall be listed and must bear a label to evidence conformance with UL 2034 and UL 217

(incorporated by reference, see § 3280.4).

* * * * *

- 16. Add §§ 3280.214 through 3280.216 to subpart C to read as follows:

§ 3280.214 Fire sprinkler system requirements.

(a) *General.* (1) Fire sprinkler systems are not required by this subpart; however, when a manufacturer installs a fire sprinkler system as an optional feature selected by the consumer or to meet State or local laws and regulations, this section establishes the requirements for the installation of a fire sprinkler system in a manufactured home.

(2) This section applies to both stand-alone and multipurpose fire sprinkler systems that do not include the use of antifreeze.

(3) A back-flow preventer is not required to separate a stand-alone sprinkler system from the water distribution system.

(b) *Design.* The design of the fire sprinkler system itself shall be in accordance with NFPA 13D (incorporated by reference, see § 3280.4) or a design which is deemed to be equivalent to the design method used in NFPA 13D.

(c) *Sprinkler location.* Sprinklers must be installed to protect all areas inside the manufactured home except:

(1) Attics and normally unoccupied concealed spaces;

(2) Closets not exceeding 24 square feet in area, with the smallest dimension not greater than three feet and having at least one base layer of minimum $\frac{5}{16}$ inch thick gypsum board on wall and ceiling surfaces;

(3) Bathrooms not more than 55 square feet in area;

(4) Garages, carports, open attached porches and similar structures; and

(5) Closets or alcoves containing heat-producing appliance, regardless of size if the closet or alcove complies with § 3280.203(b)(3).

(d) *Sprinklers.* Sprinklers shall be new, listed residential sprinklers and shall be installed in accordance with the sprinkler manufacturer's installation instructions.

(e) *Temperature rating and separation from heat sources.* Sprinklers are to have a temperature rating and be separated from heat sources as follows:

(1) Sprinklers separated from heat sources as required by the sprinkler manufacturer's installation instructions are to have a temperature rating of no less than 135 °F (57 °C) and not more than 170 °F (77 °C).

(2) Sprinklers located within the distance to a heat source as specified in table 7.5.5.3 of NFPA 13D (incorporated by reference, see § 3280.4) are to have an intermediate temperature rating not less than 175 °F (79 °C) and not more than 225 °F (107 °C) when installed in the following locations:

- (i) Attics;
- (ii) Concealed spaces located directly beneath a roof; and
- (iii) Directly under skylights where the sprinkler is exposed to direct sunlight.

(f) *Freezing areas.* Piping must be protected from freezing as required by § 3280.603(b)(4). Where sprinklers are required in areas subject to freezing, dry-sidewall or dry-pendent sprinklers extending from nonfreezing area into a freezing area, must be installed.

(g) *Sprinkler area of coverage.* The area of coverage of a single sprinkler shall not exceed 400 square feet and shall be based on the sprinkler listing and the sprinkler manufacturer's installation instructions. Sprinkler discharge shall not be blocked by obstructions unless additional sprinklers are installed to protect the obstructed area. Sprinkler separation from obstructions shall comply with the minimum distances specified in the sprinkler manufacturer's instructions. Pendent sprinklers within 3 feet of the center of a ceiling fan, surface-mounted ceiling light or other similar object shall be considered to be obstructed and additional sprinklers shall be installed, except that in all closets 50 square feet or less in size, one sprinkler shall be sufficient. Sidewall sprinklers within 5 feet of the center of a ceiling fan, surface-mounted ceiling light or other similar object shall be considered to be obstructed and additional sprinklers shall be installed.

(h) *Sprinkler installation on systems assembled with solvent cement.* The solvent cementing of threaded adapter fittings shall be completed and threaded adapters for sprinklers shall be verified as being clear of excess cement prior to the installation of sprinklers on systems assembled with solvent cement.

(i) *Painting, caulking or modifying sprinklers is prohibited.* Painted, caulked, modified, or damaged sprinklers shall be replaced.

(j) *Sprinkler piping support.* Sprinkler piping shall be supported in accordance with § 3280.608. Sprinkler piping must comply with all requirements for cold-water distribution piping. For multipurpose piping systems, the sprinkler piping shall connect to and be part of the cold-water distribution piping system. Nonmetallic pipe and tubing, such as CPVC and PEX, shall be

listed for use in residential fire sprinkler systems. Nonmetallic pipe and tubing systems shall be protected from exposure to the living space by a layer of not less than 5/16 inch thick gypsum wallboard, 1/2 inch thick plywood, or other material having a 15 minute fire rating. Pipe protection shall not be required where exposed piping is permitted by the pipe listing and in areas that do not require protection with sprinklers as specified in paragraph (c) of this section.

(k) *Shutoff valves.* Shutoff valves shall not be installed in any location where the valve would isolate piping serving one or more sprinklers, except for shutoff valves installed for the entire water distribution system.

(l) *Means of drainage.* A means to drain the sprinkler system shall be provided on the system side of the water supply inlet.

(m) *Minimum flow rate.* The sprinkler system must provide at least the flow rate required to produce a minimum discharge density of 0.05 gpm/ft² from each sprinkler and be determined by using the sprinkler manufacturer's published data for the specific sprinkler model based on the area of coverage, ceiling configuration, temperature rating and any other conditions specified by the sprinkler manufacturer.

(n) *Design flow rate.* The design flow rate for the sprinkler system shall be based on the following:

(1) The design flow rate for a room having only one sprinkler shall be the flow rate required for that sprinkler, as determined by paragraph (m) of this section.

(2) The design flow rate for a room having two or more sprinklers shall be determined by identifying the sprinkler in that room with the highest required flow rate, based on paragraph (m) of this section, and multiplying that flow rate by two.

(3) Where the sprinkler manufacturer's instructions specify different criteria for ceiling configurations that are not smooth, flat and horizontal, the required design flow rate for the room shall comply with the sprinkler manufacturer's instructions.

(4) The design flow rate for the sprinkler system shall be the flow rate required by the room with the largest flow rate, based on paragraph (n)(1), (2), or (3) of this section.

(5) For the purposes of this section, it shall be permissible to reduce the design flow rate for a room by subdividing the space into two or more rooms, where each room is evaluated separately with respect to the required design flow rate. Walls and a ceiling shall bound each room. Openings in

walls shall have a lintel (header) not less than 8 inches in depth and each lintel shall form a solid barrier between the ceiling and the top of the opening.

(o) *Pipe sizing and minimum required supply pressure.* (1) The piping to sprinklers shall be sized for the flow required by paragraph (n) of this section. The flow rate required to supply the plumbing fixtures shall not be required to be added to the sprinkler design flow rate. The minimum pipe size from the water supply inlet to any sprinkler shall be 3/4 inch diameter. Threaded adapter fittings at the point where sprinklers are attached to the piping shall be a minimum of 1/2 inch diameter.

(2) Piping shall be sized by determining the Available Pressure to offset friction loss in piping and identifying a piping material, diameter and length in accordance with the following:

(i) *Minimum supply pressure required.* The following equation shall be used to determine the required supply pressure at the fire sprinkler system supply inlet.

Equation 1 to Paragraph (o)(2)(i):

$$\text{PSUP} = \text{PT} + \text{PLE} + \text{PSP}$$

Where:

PSUP = Pressure required at the fire sprinkler system supply inlet. (Note: This is the pressure which is entered on the Fire Sprinkler System Certificate under "Minimum Water Supply Required.")

PT = Pressure loss in the fire sprinkler system piping.

PLE = Pressure loss from elevation change. (Note: Normally 4.4 psi for single story houses and 8.7 psi for two story houses).

PSP = Maximum pressure required by a sprinkler.

(ii) [Reserved]

(3) Determination of PSUP shall be in accordance with the following procedure:

(i) *Step 1.* Determine PT. For the specific design in question determine the distance (developed length) from the fire sprinkler system supply inlet to the most remote sprinkler. Refer to tables 8.4.10.2(d) through (i) of NFPA 13D (incorporated by reference, see § 3280.4) and select the correct table for the fire sprinkler system pipe material and pipe size used. Using the system design flow rate from paragraph (n) of this section find the "Allowable length of pipe" column, which is closest to, but not less than, the developed length for the design in question. The "Available Pressure" in the column heading is PT. (Note: Interpolation between "Allowable length of pipe" (developed length) and "Available Pressure" (PT) is permitted. Example: Using table

8.4.10.2(d) of NFPA 13D, Sprinkler Flow Rate = 16 gpm, developed length = 70 feet, Available Pressure (PT) = 17.5 psi.)

(ii) *Step 2.* Determine PLE. Refer to table 8.4.10.2.(c) of NFPA 13D. The elevation used in applying the table shall be the difference between the highest sprinkler and the fire sprinkler system supply inlet. Interpolation is permitted. (*Note:* If the highest sprinkler is lower than the fire sprinkler system supply inlet then subtract this value in equation 1 to paragraph (o)(2)(i), instead of adding it.)

(iii) *Step 3.* Determine PSP. Determine the maximum pressure required by any individual sprinkler based on the flow rate for each sprinkler as set forth in paragraph (n) of this section. The required pressure is provided in the data provided by the sprinkler manufacturer for the specific model based on the selected flow rate.

(p) *Testing.* The fire sprinkler system piping shall be subject to the same test as the water distribution system in § 3280.612(a). For multipurpose fire sprinkler systems, it shall be permitted to test the fire sprinkler system piping simultaneously with the domestic water distribution system.

(q) *Fire Sprinkler System Certificate.* The manufacturer must permanently affix a Fire Sprinkler System Certificate adjacent to the data plate. The manufacturer must specify on the Fire Sprinkler System Certificate the minimum required pressure in pounds per square inch (psi) and flow rate in gallons per minute (gpm) for the water supply system. The Fire Sprinkler System Certificate is to include all the statements and required information arranged in substantially the same layout as shown in the following example.

Example 1 to Paragraph (q)—Example Certificate

Fire Sprinkler System Certificate

Note: This label contains important information about the fire sprinkler system installed in this home. Please do not remove, alter, or cover this label.

General Information

Name of Manufacturer: _____

Manufactured Home Serial Number: _____

The residential fire sprinkler system installed in this dwelling unit is in compliance with 24 CFR part 3280.214 Fire Sprinkler System Requirements. The manufactured home installer must ensure that water supply testing is completed by a fire protection technician, as required below at the home site.

Warning: When necessary, replace components only with identical components or those determined to have equivalent performance characteristics with respect to flows and pressures.

Minimum Water Supply Required

Warning: For this system to operate properly, the following minimum supply of water must be available at the point of connection to the residential fire sprinkler system (to be completed by the home manufacturer):

gpm (gallons per minute) at not less than _____
psi (pounds per square inch)

The water supply shall have the capacity to provide the above required design flow rate for the sprinklers for a period of time as follows:

1. Seven minutes for manufactured homes one story in height and less than 2,000 square feet in area.

2. Ten minutes for manufactured homes two or more stories in height or equal to or greater than 2,000 square feet in area.

Where a water supply tank, a well system or a combination thereof is used, any combination of tank storage or well system shall be permitted to meet the capacity requirement.

An installer shall ensure that a fire protection technician completes and signs this Fire Sprinkler System Certificate and shall maintain a copy of the test report from the onsite testing in accordance with the home manufacturer's instructions and that the above listed required minimum water supply is available.

Company and/or Individual Name of Fire Protection Technician: _____

License/Certification Number of Technician: _____

Address of Technician: _____

Date Water Supply Tested: _____

Warning: This structure contains a residential fire sprinkler system. Do not alter or make additions to the water supply without first contacting the home manufacturer or a fire protection technician. Any control valve(s) on the water supply to the residential fire sprinkler system must be in the full, open position for the system to operate properly. If the valves must be closed temporarily to service the sprinkler, verify that they are left fully open and secured when service is complete.

(r) *Sign or valve tag.* A sign or valve tag shall be installed at the fire sprinkler

system supply inlet stating the following:

Warning, the water supply system supplies fire sprinklers that require specific flows and pressures to fight a fire. Devices that restrict the flow or decrease the pressure or automatically shut off the water to the fire sprinkler system, such as water filtration systems, water softeners and automatic shutoff valves, shall not be added to this system during installation without HUD approval. Later actions that may impact the water supply system should not be completed without first contacting the home manufacturer or a fire protection technician. Please do not remove this sign.

(s) *Component instructions.* If the manufacturer of a fire sprinkler system component used in a system provides written instructions and procedures for the operation, maintenance, periodic testing, and/or repair of the component, a copy of the instructions and procedures shall be left in each home for the consumer.

(t) *Manufacturer's installation instructions for fire sprinkler systems.* Manufacturer's installation instructions must provide the following:

(1) *Specific instructions for the inspection and testing of the fire sprinkler system during the installation of the home.* Testing requirements are to be consistent with § 3280.612(a).

(2) *Required statement.* If this manufactured home contains a fire sprinkler system, an installer shall ensure a fire protection technician tests the water supply at the site and completes the Fire Safety System Certificate and that the test reports the minimum conditions described on the Fire Sprinkler System Certificate in the home (located next to the data plate).

§ 3280.215 Multi-dwelling unit manufactured homes.

(a) *General.* In manufactured homes with more than one dwelling unit, each dwelling unit must be separated from each other by wall and floor assemblies having not less than a 1 hour fire resistance rating when tested in accordance with ASTM E119 or UL 263 (both incorporated by reference, see § 3280.4) or having a fire resistance rating of not less than a 1 hour when calculated in accordance with chapter 16 of the AWC National Design Specification (NDS) for Wood Construction, with Supplement (incorporated by reference, see § 3280.4).

(b) *Fire resistance walls.* Fire-resistance-rated floor/ceiling and wall assemblies must extend to and be tight against the exterior wall, and wall

assemblies must extend from the foundation to the underside of the roof sheathing except as follows:

(1) Wall assemblies need not extend through attic spaces where the ceiling is protected by not less than $\frac{5}{8}$ inch Type X gypsum board and attic draftstop constructed as specified in § 3280.216 is provided above and along the wall assembly separating the dwelling units; and

(2) The structural framing supporting the ceiling is protected by not less than $\frac{1}{2}$ inch gypsum board or equivalent.

(3) A fire resistance rating of $\frac{1}{2}$ hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with § 3280.214.

(c) *Supporting construction.* Where floor assemblies are required to be fire resistant rated by this section, the supporting construction of such assemblies must have an equal or greater fire resistance rating.

(d) *Dwelling unit rated penetrations.* Penetrations of wall or floor-ceiling assemblies in multi-dwelling unit manufactured homes are required to be fire-resistance rated in accordance with this section.

(1) *Through penetrations.* (i) Through penetrations must be installed as tested in the approved fire-resistance rated assembly; or

(ii) Through penetrations must be protected by an approved penetration fire stop system installed as tested in accordance with ASTM E814 or UL 1479 (both incorporated by reference, see § 3280.4), with a positive pressure differential of not less than 0.01 inch of water and must have an *F* rating of not less than the required fire resistance rating of the wall or floor-ceiling assembly penetrated; or

(iii) Where the penetrating items are steel, ferrous or copper pipes, tubes, or conduits, the material used to fill the annular space must prevent the passage of flame and hot gasses sufficient to ignite cotton waste where subjected to ASTM E119 or UL 263 (both incorporated by reference, see § 3280.4) time temperature fire conditions under a positive pressure differential of not less than 0.01 inch of water at the location of the through penetration for the time period equivalent to the fire resistance rating of the construction penetrated.

(2) *Membrane penetrations.* Membrane penetrations must comply with paragraph (d)(1) of this section. Where walls are required to have a fire resistance rating, recessed fixtures must be installed so that the required fire resistance rating will not be reduced except as follows:

(i) By membrane penetrations of fire-resistant-rated walls, ceiling/floors and partitions by steel electrical boxes provided they do not exceed 16 square inches in area and the aggregate area of the openings through the membrane does not exceed 100 square inches in any 100 square feet of wall area. The annular space between the wall membrane and the box must not exceed $\frac{1}{8}$ inch. Such boxes on opposite sides of the wall must be separated by one of the following:

(A) A horizontal distance of not less than 24 inches where the wall or partition is constructed with individual non-communicating stud cavities; or

(B) A horizontal distance of not less than the depth of the wall cavity, where the wall cavity is filled with loose-fill insulation; or

(C) Solid fire blocking in accordance with § 3280.206; or

(D) Protecting both boxes with listed putty pads; or

(E) Other listed materials and methods.

(ii) By membrane penetrations of listed electrical boxes of any materials provided that the boxes have been tested for use in fire resistance rated assemblies and are installed in accordance with the instructions included with the listing. The annular space between the wall membrane and the box must not exceed $\frac{1}{8}$ inch unless otherwise noted. Such boxes on opposite sides of the wall must be separated by one of the following:

(A) The horizontal distance specified in the listing of the electrical boxes; or

(B) Solid fire blocking in accordance with § 3280.206; or

(C) Protecting boxes with listed putty pads; or

(D) Other listed materials and methods.

(iii) By the annular space created by the penetration of a fire sprinkler provided that it is covered by a metal escutcheon plate.

§ 3280.216 Draftstopping requirements for multi-dwelling unit manufactured homes.

(a) When there is usable space both above and below the concealed space of a floor/ceiling assembly in multi-dwelling unit manufactured homes, draftstops must be installed so that the area of the concealed space does not exceed 1,000 square feet. Draftstopping must divide the concealed space into approximately equal areas. Where the assembly is enclosed by a floor membrane above and a ceiling membrane below, draftstopping shall be provided in floor-ceiling assemblies under the following circumstances:

(1) Ceiling is suspended under the floor framing; or

(2) Floor framing is constructed of truss type open-web or perforated members.

(b) Draftstopping materials must not be less than $\frac{1}{2}$ inch gypsum board, $\frac{3}{8}$ inch wood structural panels, or other approved materials adequately supported.

(c) Draftstopping must be installed parallel to the floor framing members.

(d) The integrity of all draftstops must be maintained.

■ 17. Amend § 3280.303 by revising paragraph (b) to read as follows:

§ 3280.303 General requirements.

* * * * *

(b) *Construction.* All Construction methods must be in conformance with an approved quality assurance manual as provided by §§ 3282.203 and 3282.361(c) and accepted engineering practices to ensure durable, livable, and safe housing.

* * * * *

■ 18. Revise and republish § 3280.304 to read as follows:

§ 3280.304 Materials.

(a) Dimension and board lumber must not exceed 19 percent moisture content at the time of installation, except that treated lumber used for exterior purposes only and does not extend into the main home construction may have a moisture content exceeding 19 percent.

(b) The standards for some of the generally used materials and methods of construction that are listed in this paragraph (b) are incorporated by reference (see § 3280.4).

(1) *Aluminum.* (i) Aluminum Design Manual, Specifications and Guidelines for Aluminum Structures, Part 1—A (Aluminum Association).

(ii) Aluminum Design Manual, Specifications and Guidelines for Aluminum Structures, Part 1—B (Aluminum Association).

(2) *Steel.* (i) Specification for Structural Steel Buildings—AISC 360.

(ii) North American Specification for the Design of Cold-Formed Steel Structural Members—AISI S100.

(iii) Specification for the Design of Cold-Formed Stainless Steel Structural Members—SEI/ASCE 8.

(iv) Standard Specifications Load Tables and Weight Tables for Steel Joists and Joist Girders—SJI.

(v) Structural Applications of Steel Cables for Buildings—ASCE 19.

(vi) Standard Specification for Strapping, Flat Steel and Seals—ASTM D3953.

(3) *Wood and wood products.* (i) Basic Hardboard—ANSI A135.4 (Composite Panel Association).

(ii) Prefinished Hardboard Paneling—ANSI A135.5 (Composite Panel Association).

(iii) Engineered Wood Siding—ANSI A135.6 (Composite Panel Association).

(iv) American National Standard for Hardwood and Decorative Plywood—ANSI/HPVA HP-1 (Decorative Hardwoods Association).

(v) Structural Design Guide for Hardwood Plywood Wall Panels—HP-SG (Decorative Hardwoods Association).

(vi) For Wood Products—Structural Glued Laminated Timber—ANSI/AITC A190.1.

(vii) Structural Plywood (With Typical APA Trademarks)—NIST PS 1.

(viii) APA Design/Construction Guide, Residential and Commercial Structures—APA E30-P.

(ix) National Design Standard for Metal Plate Connected Wood Truss Construction, TPI 1.

(x) Design and Fabrication of All-Plywood Beams—H815G.

(xi) Panel Design Specification—APA D510C.

(xii) Design and Fabrication of Glued Plywood-Lumber Beams—APA S812S.

(xiii) Design and Fabrication of Plywood Curved Panels—APA S811P.

(xiv) Design and Fabrication of Plywood Sandwich Panels, APA U814J.

(xv) Performance Standard for Wood-Based Structural Use Panels—NIST PS 2.

(xvi) Design and Fabrication of Plywood Stressed-Skin Panels—APA U813M.

(xvii) National Design Specifications for Wood Construction, with Supplement, Design Values for Wood Construction—AWC NDS.

(xviii) Wood Structural Design Data (AFPA).

(xix) Span Tables for Joists and Rafters: American Softwood Lumber Standard (PS 20-10) Sizes—AWC-2012.

(xx) Design Values for Joists and Rafters, Supplement to Span Tables for Joists and Rafters—AWC-2012.

(xxi) Particleboard—ANSI A208.1 (Composite Panel Association).

(xxii) North American Fenestration Standard/Specification for Windows, Doors and Skylights—AAMA/WDMA/CSA 101/I.S.2/A440 (CSA Group).

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

(xxiv) Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials—ASTM D4442.

(xxv) Standard Test Method for Laboratory Standardization and Calibration of Hand-Held Moisture Meters—ASTM D4444.

(xxvi) Medium Density Fiberboard (MDF) For Interior Applications—ANSI A208.2.

(xxvii) Standard Test Methods for Fire Tests of Building Construction and Materials—ASTM E119.

(xxviii) Engineered Wood Construction Guide—APA E30V.

(xxix) Plywood Design—APA Y510.

(4) *Other.* (i) Standard Specification for Gypsum Board—ASTM C1396/C1396M.

(ii) [Reserved].

(5) *Fasteners.* (i) ICC-ES Evaluation Report: Power Driven Staples and Nails—ESR 1539.

(ii) [Reserved]

(6) *Unclassified.* (i) Minimum Design Loads for Buildings and Other Structures—ANSI/ASCE.

(ii) Safety Glazing Materials Used in Buildings—Safety Performance Specifications and Methods of Test—ANSI Z97.1.

(iii) Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding—ASTM D3679-09a.

(iv) Standard Practice for Installation of Rigid Poly (Vinyl Chloride) (PVC) Siding and Soffit—ASTM D4756.

(v) Standard Specification for Polypropylene (PP) Siding—ASTM D7254.

(c) Materials and methods of construction utilized in the design and construction of manufactured homes which are covered by the standards listed in this section, or any applicable portion thereof shall comply with these requirements.

(d) Engineering analysis and testing methods contained in these references shall be utilized to judge conformance with accepted engineering practices required in § 3280.303(c).

(e) Materials and methods of installation conforming to these standards shall be considered acceptable when installed in conformance with the requirements of this part.

(f) Materials meeting the standards listed in this section (or the applicable portion thereof) are considered acceptable unless otherwise specified herein or unless substantial doubt exists as to conformance.

(g) Wood products shall be identified as complying with the appropriate standards.

■ 19. Amend § 3280.305 by revising paragraphs (j)(1) and (k)(2) to read as follows:

§ 3280.305 Structural design requirements.

* * * * *

(j) * * *

(1) All welds must be made in accordance with the applicable

provisions of the Specification for Structural Steel Buildings, AISC 360 (incorporated by reference, see § 3280.4); the North American Specification for the Design of Cold-Formed Steel Structural Members, AISI S100 (incorporated by reference, see § 3280.4); and the Specification for the Design of Cold-Formed Stainless Steel Structural Members, SEI/ASCE 8 (incorporated by reference, see § 3280.4).

* * * * *

(k) * * *

(2) For roofs with slopes less than 7:12 that contain an attic area or for portions of roofs with slopes 7:12 or greater that do meet the ceiling height/living space requirements of the standards, the attic floor must be designed for a storage live load of 20 pounds per square foot (psf).

(i) Attic area as used within this section are those spaces where the maximum clear height between joist and rafters is 42 inches or greater or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches high by 24 inches in width or greater, within the plane of the trusses.

(ii) The live load need only be applied to those portions of the joist or truss bottom chords where all of the following criteria are met:

(A) The attic area is accessible from an opening not less than 20 inches in width and 30 inches in length that is located where the clear height in the attic is a minimum of 30 inches; and

(B) The slope of the joists of the truss bottom chord are no greater than 2 inches vertical to 12 inches horizontal; and

(C) Required insulation depth is less than the joist or truss bottom chord member depth.

■ 20. Amend § 3280.307 by adding paragraph (f) to read as follows:

§ 3280.307 Resistance to elements and use.

* * * * *

(f) The exterior wall envelope must be designed and constructed in a manner that prevents the accumulation of water within the wall assembly by providing a Water Resistive Barrier (WRB) behind the exterior cladding and a means of draining water that enters the assembly.

■ 21. Add § 3280.309 to subpart D to read as follows:

§ 3280.309 Standard for vinyl siding and polypropylene siding used in manufactured homes.

(a) *Scope.* This section establishes the requirements for vinyl siding and

polypropylene siding used in manufactured homes.

(b) *Standards*—(1) *Vinyl siding*. All vinyl siding must comply with the requirements of ASTM D3679 (incorporated by reference, see § 3280.4) and must be certified or listed and labeled as conforming to those requirements.

(2) *Polypropylene siding*. All polypropylene siding must comply with the requirements of ASTM D7254 (incorporated by reference, see § 3280.4) and must be certified or listed and labeled as conforming to those requirements.

(c) *Installation*. Vinyl siding and soffit installation must be installed in accordance with the manufacturer's installation instructions. Vinyl siding and soffit installation must be based on ASTM D4756 (incorporated by reference, see § 3280.4).

■ 22. Amend § 3280.403 by revising paragraphs (b)(1), (b)(2) introductory text, (d)(1), and (e) to read as follows:

§ 3280.403 Requirements for windows, sliding glass doors, and skylights.

* * * * *

(b) *Standard*. (1) All primary windows and sliding glass doors must comply with AAMA 1701.2 or AAMA/WDMA/CSA 101/I.S.2/A440 (both incorporated by reference, see § 3280.4), except the exterior and interior pressure tests must be conducted at the minimum design wind loads required for components in § 3280.305(c)(1).

(2) All skylights must comply with AAMA/WDMA/CSA 101/I.S.2/A440 (incorporated by reference, see § 3280.4).

* * * * *

(d) * * *

(1) Safety glazing materials, where used shall meet ANSI Z97.1 (incorporated by reference, see § 3280.4).

* * * * *

(e) *Certification*. All primary windows and sliding glass doors to be installed in manufactured homes must be certified as complying with AAMA 1701.2 or AAMA/WDMA/CSA 101/I.S.2/A440 (both incorporated by reference, see § 3280.4). 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 from an independent product certification body accredited to ISO/IEC 17065 (incorporated by reference, see § 3280.4).

(2) In determining certifiability of the products, an independent quality

assurance agency must conduct pre-production specimen tests in accordance with AAMA 1702.2 or AAMA/WDMA/CSA 101/I.S.2/A440 (both incorporated by reference, see § 3280.4). Further, such agency must inspect the product manufacturer's facility at least twice per year.

(3) All skylights installed in manufactured homes must be certified as complying with AAMA 1701.2 or AAMA/WDMA/CSA 101/I.S.2/A440 (both incorporated by reference, see § 3280.4).

* * * * *

■ 23. Amend § 3280.404 by revising paragraphs (b) and (e) 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, must meet all requirements of AAMA 1701.2 and AAMA 1704 or AAMA/WDMA/CSA 101/I.S.2/A440 (all incorporated by reference, see § 3280.4).

(1) *Loading*. Exterior and interior pressure tests for components and cladding must be conducted meeting or exceeding the minimum design wind loads required by § 3280.305(c)(1).

(2) *Dimensions*. All egress systems must have a minimum clear horizontal dimension of 20 inches and a minimum clear vertical dimension of 24 inches and have a clear opening of at least 5 ft².

* * * * *

(e) *Certification of egress windows and devices*. (1) Egress windows and devices must be listed in accordance with the procedures and requirements of AAMA 1701.2 and AAMA 1704 or AAMA/WDMA/CSA 101/I.S.2/A440 (all incorporated by reference, see § 3280.4). This certification must be based on tests conducted meeting or exceeding the minimum design wind loads specified in § 3280.305(c)(1).

(2) All such windows and devices must show evidence of certification by affixing a quality certification label to the product from an independent product certification body accredited to ISO/IEC 17065 (incorporated by reference, see § 3280.4).

* * * * *

■ 24. Amend § 3280.405 by revising 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 or AAMA/WDMA/CSA 101/I.S.2/A440 (both incorporated by reference, see § 3280.4).

(c) *Materials and methods*. Any material or method of construction must conform to the performance requirements as outlined in paragraph (b) of this section. Plywood must be exterior type and preservative treated in accordance with WDMA I.S.4 (incorporated by reference, see § 3280.4).

* * * * *

(e) *Certification*. All swinging exterior doors to be installed in manufactured homes must be certified as complying with AAMA 1702.2 or AAMA/WDMA/CSA 101/I.S.2/A440 (both incorporated by reference, see § 3280.4).

(1) All such doors must show evidence of certification by affixing a quality certification label to the product from an independent product certification body accredited to ISO/IEC 17065 (incorporated by reference, see § 3280.4).

(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 or AAMA/WDMA/CSA 101/I.S.2/A440 (both incorporated by reference, see § 3280.4).

* * * * *

■ 25. Amend § 3280.504 by revising paragraphs (a)(1) and (c) to read as follows:

§ 3280.504 Condensation control and installation of vapor retarders.

(a) * * *

(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 E96/E96M (incorporated by reference, see § 3280.4), installed on the living space side of the roof cavity.

* * * * *

(c) *Liquid applied vapor retarders*. Each liquid applied vapor retarder must be tested by a nationally recognized testing agency for use on the specific substrate to which it is applied. The test report must include the perm rating, as measured by ASTM E96/E96M (incorporated by reference, see § 3280.4), and associated application rate for each specific substrate.

* * * * *

■ 26. Amend § 3280.510 by revising the first sentence of the introductory text to read as follows:

§ 3280.510 Heat loss certificate.

The manufactured home manufacturer must permanently affix

the following “Certificate” to an interior surface of each dwelling unit that is readily visible to the occupant. * * *

* * * * *

■ 27. Amend § 3280.511 by revising the first sentence of paragraph (a) introductory text and paragraph (b) to read as follows:

§ 3280.511 Comfort cooling certificate and information.

(a) The manufactured home manufacturer must permanently affix a “Comfort Cooling Certificate” to an interior surface of each dwelling unit that is readily visible to the occupant. * * *

* * * * *

(b) For each home designated as suitable for central air conditioning the manufacturer shall provide the maximum central manufactured home air conditioning capacity certified in accordance with the ANSI/AHRI Standard 210/240 with Addenda 1 and 2 (incorporated by reference, see § 3280.4) and in accordance with § 3280.715(a)(3). If the capacity information provided is based on entrances to the air supply duct at other than the furnace plenum, the manufacturer shall indicate the correct supply air entrance and return air exit locations.

* * * * *

■ 28. Amend § 3280.603 by revising paragraph (b)(4)(ii) to read as follows:

§ 3280.603 General requirements.

* * * * *

(b) * * *

(4) * * *

(ii) A statement in the installation instructions required by § 3280.306(b), stating that if the heat tape or pipe heating cable is used, it must be listed or certified for its intended purpose.

* * * * *

■ 29. Revise and republish § 3280.604 to read as follows:

§ 3280.604 Materials.

(a) *Minimum standards.* Materials, devices, fixtures, fittings, equipment, appliances, appurtenances and accessories shall conform to one of the standards listed in this section (all incorporated by reference, see § 3280.4) and be free from defects. Where an appropriate standard is not listed in this section or a standard not listed is preferred, the item may be used if it is listed. A listing is also required when so specified in other sections of this subpart.

(b) *Compliance when there is more than one listed standard.* Where more than one standard is referenced for a

particular material or component, compliance with only one of those standards is acceptable. Exceptions:

(1) When one of the reference standards requires evaluation of chemical, toxicity or odor properties which are not included in the other standard, then conformance to the applicable requirements of each standard shall be demonstrated; or

(2) When a plastic material or component is not covered by the standards in this section, it must be certified as non-toxic in accordance with Drinking water system components-Health effects—ANSI/NSF 61 (incorporated by reference, see § 3280.4).

(c) *List of standards.* Standards for some of the generally used materials and methods of construction are listed as following:

(1) *Ferrous pipe and fittings.* (i) Gray Iron Threaded Fittings—ANSI/ASME B16.4.

(ii) Malleable Iron Threaded Fittings—ANSI/ASME B16.3.

(iii) Material and Property Standard for Special Cast Iron Fittings—IAPMO PS 5.

(iv) Welded and Seamless Wrought Steel Pipe—ANSI/ASME B36.10.

(v) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless—ASTM A53/A53M.

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

(vii) Standard Specification for Cast Iron Soil Pipe and Fittings—ASTM A74.

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

(2) *Nonferrous pipe and fittings.* (i) Standard Specification for Seamless Copper Pipe, Standard Sizes—ASTM B42.

(ii) Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube—ASTM B251.

(iii) Standard Specification for Seamless Copper Water Tube—ASTM B88.

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

(v) Wrought-Copper and Copper Alloy Solder-Joint Pressure Fitting—ASME/ANSI B16.22.

(vi) Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings-DWV—ASME/ANSI B16.29.

(vii) Cast Copper Alloy Solder-Joint Pressure Fittings—ANSI B16.18.

(viii) Cast Copper Alloy Solder-Joint Drainage Fittings-DWV—ASME B16.23.

(ix) Cast Copper Alloy Fittings for Flared Copper Tubes—ASME/ANSI B16.26.

(x) Standard Specification for Seamless Red Brass Pipe, Standard Sizes—ASTM B43.

(xi) Cast Bronze Threaded Fittings, Classes 125 and 250—ANSI/ASME B16.15.

(3) *Plastic pipe and fittings.* (i) Standard Specification Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings—ASTM D2661.

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

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

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

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

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

(vii) Plastic Piping Components and Related Materials—ANSI/NSF 14.

(viii) Standard Specification for Crosslinked Polyethylene (PEX) Tubing—ASTM F876.

(ix) Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems—ASTM F877.

(4) *Miscellaneous.* (i) Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings, ASTM C564.

(ii) Backflow Valves—ANSI A112.14.1.

(iii) Plumbing Fixture Setting Compound—TTP 1536A.

(iv) Material and Property Standard for Cast Brass and Tubing P-Traps—IAPMO PS 2.

(v) Relief Valves for Hot Water Supply Systems—ANSI Z21.22.

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

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

(viii) Specification for Neoprene Rubber Gaskets for HUB and Spigot Cast Iron Soil Pipe and Fittings—CISPI-HSN.

(ix) Plumbing System Components for Manufactured Homes and Recreational Vehicles—ANSI/NSF 24.

(x) Material and Property Standard for Diversion Tees and Twin Waste Elbow—IAPMO PS 9.

(xi) Material and Property Standard for Flexible Metallic Water Connectors—IAPMO PS 14.

(xii) Material and Property Standard for Dishwasher Drain Airgaps—IAPMO PS 23.

(xiii) Material and Property Standards for Backflow Prevention Assemblies—IAPMO PS 31.

(xiv) Performance Requirements for Air Admittance Valves for Plumbing Drainage Systems, Fixture and Branch Devices—ASSE 1051.

(xv) Drinking Water System Components—Health Effects—ANSI/NSF 61.

(5) *Plumbing fixtures.* (i) Plumbing Fixtures (General Specifications)—FS WW-P-541E/GEN.

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

(iii) Enameled Cast Iron Plumbing Fixtures—ANSI/ASME A112.19.1M.

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

(v) Plastic Bathtub Units with Addenda Z124.1a and Z124.1b—ANSI Z124.1.

(vi) Standard for Porcelain Enameled Formed Steel Plumbing Fixtures—IAPMO TSC 22.

(vii) Plastic Shower Receptors and Shower Stalls with Addendum Z124.2a—ANSI Z124.2.

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

(ix) Material and Property Standard for Drains for Prefabricated and Precast Showers—IAPMO PS 4.

(x) Plastic Lavatories with Addendum Z124.3a—ANSI Z124.3.

(xi) Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test—ANSI Z97.1.

(xii) Water Heater Relief Valve Drain Tubes—ASME A112.4.1.

(xiii) Flexible Water Connectors—ASME A112.18.6.

(xiv) Performance Requirements for Backflow Protection Devices and Systems in Plumbing Fixture Fittings—ASME A112.18.3M.

(xv) Non-Vitreous Ceramic Plumbing Fixtures—ASME A112.19.9M.

(xvi) Dual Flush Devices for Water Closets—ASME A119.19.10.

(xvii) Deck Mounted Bath/Shower Transfer Valves with Integral Backflow Protection—ASME A112.18.7.

(xviii) Plastic Fittings for Connecting Water Closets to the Sanitary Drainage System—ASME A112.4.3.

(xix) Hydraulic Performance Requirements for Water Closets and Urinals—ASME A112.19.6.

(xx) Plumbing Fixture Fittings—ASME/ANSI A112.18.1M.

(xxi) Trim for Water Closet, Bowls, Tanks, and Urinals—ANSI A112.19.5.

(xxii) Plastic Water Closets, Bowls, and Tanks with Addenda Z124.4a—ANSI Z124.4.

(xxiii) Plastic Toilet (Water Closets) Seats—ANSI Z124.5.

(xxiv) Prefabricated Plastic Spa Shells—ANSI Z124.7.

(xxv) Whirlpool Bathtub Appliances—ASME/ANSI A112.19.7M.

(xxvi) Plastic Urinal Fixtures—ANSI Z-124.9.

(xxvii) Performance Requirements for Automatic Compensating Values for Individual Shower and Tub/Shower Combinations—ASSE 1016.

(xxviii) Performance Requirements for Pressurized Flushing Devices (Flushometers) for Plumbing Fixtures—ASSE 1037.

(xxix) Performance Requirements for Water Closet Flush Tank Fill Valves (Ballcocks)—ASSE 1002.

(xxx) Performance Requirements for Hand-held Showers—ASSE 1014.

(xxxi) Hydrants for Utility and Maintenance Use—ANSI/ASME A112.21.3M.

(xxxii) Performance Requirements for Home Laundry Equipment—ASSE 1007.

(xxxiii) Performance Requirements for Hot Water Dispensers, Household Storage Type Electrical—ASSE 1023.

(xxxiv) Plumbing Requirements for Residential Use (Household) Dishwashers—ASSE 1006.

(xxxv) Performance Requirements for Household Food Waste Disposer Units—ASSE 1008.

(xxxvi) Performance Requirements for Temperature Activated Mixing Valves for Primary Domestic Use—ASSE 1017.

(xxxv) Water Hammer Arresters—ANSI A112.26.1.

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

(xxxvii) Air Gaps in Plumbing Systems—ASME A112.1.2.

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

(xxxix) Performance Requirements for Pipe Applied Atmospheric Type Vacuum Breakers—ASSE 1001.

(xl) Performance Requirements for Hose Connection Vacuum Breakers—ASSE 1011.

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

(xlii) Performance Requirements for Automatic Compensating Values for Individual Shower and Tub/Shower Combinations—ASSE 1016.

(xliii) Performance Requirements for Water Temperature Limiting Devices—ASSE 1070.

■ 30. Amend § 3280.607 by revising paragraphs (b)(3) and (c)(6)(iv) to read as follows:

§ 3280.607 Plumbing fixtures.

* * * * *

(b) * * *

(3) *Shower compartment.* (i) Each compartment stall must be provided with an approved watertight receptor with sides and back extending with sides and back extending at least 1 inch above the finished dam or threshold. Except as provided by paragraph (b)(3)(v) of this section, the depth of a shower receptor must not be less than 2 inches or more than 9 inches measured from the top of the finished dam or threshold to the top of the drain. The wall area must be constructed of smooth, non-corrosive, and non-absorbent materials to a height not less than 6 feet above the bathroom floor level. Such walls must form a watertight joint with each other and with the bathtub, receptor or shower floor. The floor or compartment must slope uniformly to the drain not less than one-fourth nor more than 1/2 inch per foot.

(ii) The joint around the drain connection shall be made watertight by a flange, clamping ring, or other approved listed means.

(iii) Shower doors and tub and shower enclosures must be constructed so as to be waterproof and, if glazed, glazing must comply with ANSI Z97.1 (incorporated by reference, see § 3280.4)

(iv) Prefabricated plumbing fixtures shall be approved or listed.

(v) Thresholds in roll-in-type shower compartments must be 1/2 inch maximum in height in accordance with paragraph (b)(3)(vi) of this section. In transfer type shower compartments, thresholds 1/2 inch maximum in height must be beveled, rounded, or be vertical.

(vi) Changes in level of 1/4 inch maximum in height must be permitted to be vertical. Changes in level greater than 1/4 inch in height and not more than 1/2 inch maximum in height must be beveled with a slope not steeper than 1:2.

(vii) Shower and tub-shower combination valves must be balanced pressure, thermostatic, or combination mixing valves that conform to the requirements of ASSE 1016 (incorporated by reference, see § 3280.4). Such valves must be equipped

with handle position stops that are adjustable in accordance with the valve manufacturer's instructions and to a maximum setting of 120 °F. Hot water supplied to bathtubs and whirlpool bathtubs are to be limited to a temperature of not greater than 120 °F by a water temperature limiting device that conforms to the requirements of ASSE 1070 (incorporated by reference, see § 3280.4).

* * * * *

(c) * * *

(6) * * *

(iv) *Electrical*. Wiring must comply with Articles 680.70, 680.71, and 680.72 of NFPA 70 (incorporated by reference, see § 3280.4).

■ 31. Amend § 3280.609 by revising paragraph (a)(2) to read as follows:

§ 3280.609 Water distribution systems.

(a) * * *

(2) *Hot water supply*. Each dwelling unit equipped with a kitchen sink, and bathtub and/or shower must be provided with a hot water supply system including a listed water heater.

* * * * *

■ 32. Amend § 3280.611 by revising paragraph (c)(5) to read as follows:

§ 3280.611 Vents and venting.

* * * * *

(c) * * *

(5) The distance of the fixture trap from the vent must not exceed the values given in the following table:

TABLE 1 TO PARAGRAPH (c)(5)—MAXIMUM DISTANCE OF FIXTURES FROM VENT TRAP

Size of fixture drain (inches)	Distance trap to vent
1¼	5 ft.
1½	6 ft.
2	8 ft.
3	12 ft.

* * * * *

■ 33. Amend § 3280.702 by revising the definitions for “Class 0 air ducts and air connectors” and “Class 1 air ducts and air connectors” to read as follows:

§ 3280.702 Definitions.

* * * * *

Class 0 air ducts and air connectors means air ducts and air connectors having a fire hazard classification of zero when tested in accordance with UL 181 (incorporated by reference, see § 3280.4).

Class 1 air ducts and air connectors means air ducts and air connectors having a flame spread rating of not over 25 without evidence of continued

progressive combustion and a smoke developed rating of not over 50 when tested in accordance with UL 181 (incorporated by reference, see § 3280.4).

* * * * *

■ 34. Revise § 3280.703 to read as follows:

§ 3280.703 Minimum standards.

Heating, cooling, and fuel burning appliances and systems in manufactured homes shall be free of defects and shall conform to applicable standards (incorporated by reference, see § 3280.4) in this section unless otherwise specified in this part. When more than one standard is referenced, compliance with any one such standard shall meet the requirements of this part.

(a) *Appliances*. (1) Liquid Fuel-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles—UL 307A.

(2) Fixed and Location-Dedicated Electric Room Heaters—UL 2021.

(3) Electric Baseboard Heating Equipment—UL 1042.

(4) Electric Central Air Heating Equipment—UL 1096.

(5) Gas-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles—UL 307B.

(6) Gas Clothes Dryers Volume I, Type 1 Clothes Dryers—ANSI Z21.5.1 (CSA Group).

(7) Gas-fired Water Heaters, Volume III, Storage Water Heaters with Input Ratings Above 75,000 BTU per Hour, Circulating and Instantaneous—ANSI Z21.10.3 (CSA Group).

(8) Gas-Fired, Heat Activated Air Conditioning and Heat Pump Appliances—ANSI Z21.40.1 (CSA Group).

(9) Gas-Fired Central Furnaces (Except Direct Vent Systems)—ANSI Z21.47 (CSA Group).

(10) Connectors for Outdoor Gas Appliances and Manufactured Homes—ANSI Z21.75 (CSA Group).

(11) Decorative Gas Appliances for Installation in Solid Fuel Burning Fireplaces—RADCO DS-010.

(12) Household Cooking Gas Appliances—ANSI Z21.1 (CSA Group).

(13) Refrigerators Using Gas Fuel—ANSI Z21.19 (CSA Group).

(14) Gas Water Heaters, Volume I, Storage Water Heaters with Input Ratings of 75,000 BTU per hour or Less—ANSI Z21.10.1 (CSA Group).

(15) Household Electric Storage Tank Water Heaters—UL 174.

(16) Household and Similar Electrical Appliances—Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers—UL 60335-2-40.

(17) Smoke Detectors for Fire Protective Signaling Systems—UL 268.

(18) Single and Multiple Station Carbon Monoxide Alarms—UL 2034.

(19) Electric Heating Appliances—UL 499.

(b) *Ferrous pipe and fittings*. (1) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless—ASTM A53/A53M.

(2) Standard Specification for Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines—ASTM A539.

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

(4) Welding and Seamless Wrought Steel Pipe—ANSI/ASME B36.10.

(c) *Nonferrous pipe, tubing, and fittings*. (1) Standard Specification for Seamless Copper Water Tube—ASTM B88.

(2) Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service—ASTM B280.

(3) Connectors for Gas Appliances—ANSI Z21.24 (CSA Group).

(4) Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves—ANSI Z21.15 (CSA Group).

(5) Standard for Gas Supply Connectors for Manufactured Homes—IAPMO TS 9.

(6) Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube—ASTM B251.

(7) Standard Specification for Seamless Copper Pipe, Standard Sizes—ASTM B42.

(d) *Miscellaneous*. (1) Factory-Made Air Ducts and Air Connectors—UL 181.

(2) Closure Systems for use with Rigid Air Ducts and Air Connectors—UL 181A.

(3) Closure Systems for use with Flexible Air Ducts and Air Connectors—UL 181B.

(4) Safety Glazing Materials Used in Buildings—Safety Performance Specifications and Methods of Test—ANSI Z97.1.

(5) Tube Fittings for Flammable and Combustible Fluids, Refrigeration Service, and Marine Use—UL 109.

(6) Pigtails and Flexible Hose Connectors for LP-Gas—UL 569.

(7) Roof Jacks for Manufactured Homes and Recreational Vehicles—UL 311.

(8) Relief Valves for Hot Water Supply Systems—ANSI Z21.22.

(9) Automatic electrical controls for household and similar use—Part 2-5: Particular requirements for automatic electrical burner control systems—ANSI Z21.20 (CSA Group).

(10) Automatic Valves for Gas Appliances—ANSI Z21.21 (CSA Group).

(11) Gas Appliance Thermostats—ANSI Z21.23 (CSA Group).

(12) Gas Vents—UL 441.

(13) Installation of Oil-Burning Equipment—NFPA 31.

(14) National Fuel Gas Code—NFPA 54/ANSI Z223.1.

(15) Warm Air Heating and Air Conditioning Systems—NFPA 90B.

(16) Liquefied Petroleum Gases Code—NFPA 58.

(17) Flares for Tubing—SAE J533.

(18) Factory Built Chimneys for Residential Type and Building Heating Appliances—UL 103.

(19) Factory-Built Fireplaces—UL 127.

(20) Solid-Fuel Type Room Heaters—UL 1482.

(21) Fireplace Stoves—UL 737.

(22) Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment—ANSI/AHRI Standard 210/240 with Addenda 1 and 2.

(23) Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings—ANSI/ASHRAE 62.2.

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

■ 35. Amend § 3280.705 by revising paragraphs (b)(1), (3), and (5), (c)(2), (e), (f), (j), (l)(1), (l)(2)(ii), and (l)(3) to read as follows:

§ 3280.705 Gas piping systems.

* * * * *

(b) * * *

(1) Steel or wrought-iron pipe shall comply with ASME B36.10 (incorporated by reference, see § 3280.4). Threaded brass pipe in iron pipe sizes may be used. Threaded brass pipe shall comply with ASTM B43. (incorporated by reference, see § 3280.4).

* * * * *

(3) Copper tubing must be annealed type, Grade K or L, conforming to ASTM B88 (incorporated by reference, see § 3280.4), or must comply with the ASTM B280 (incorporated by reference, see § 3280.4). Copper tubing must be internally tinned.

* * * * *

(5) Corrugated stainless steel tubing (CSST) systems must be listed and installed in accordance with ANSI LC 1 (CSA Group; incorporated by reference, see § 3280.4), and the requirements of this section.

(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 paragraph (d) of this section. A shutoff valve of the non-displaceable rotor type conforming to ANSI Z21.15 (CSA Group; incorporated by reference, see § 3280.4), suitable for outdoor use must be installed at each crossover point upstream of the connection.

* * * * *

(e) *Joints for gas pipe.* All pipe joints in the piping system, unless welded or brazed, shall be threaded joints that comply with ANSI/ASME B1.20.1 (incorporated by reference, see § 3280.4). Right and left nipples or couplings shall not be used. Unions, if used, shall be of ground joint type. The material used for welding or brazing pipe connections shall have a melting temperature in excess of 1,000 °F.

(f) *Joints for tubing.* (1) Tubing joints shall be made with either a single or a double flare of 45 degrees in accordance with SAE J533 (incorporated by reference, see § 3280.4) or with other listed vibration-resistant fittings, or joints may be brazed with material having a melting point exceeding 1,000 °F. Metallic ball sleeve compression-type tubing fittings shall not be used.

(2) Steel tubing joints shall be made with a double-flare in accordance with SAE J533 (incorporated by reference, see § 3280.4).

* * * * *

(j) *Gas supply connection.* When gas appliances are installed, at least one gas supply connection must be provided on each dwelling unit. The connection must not be located beneath an exit door. Where more than one connection is provided, the piping system must be sized to provide adequate capacity from each supply connection.

* * * * *

(l) * * *

(1) *General.* A listed LP-Gas flexible connection conforming to UL 569 (incorporated by reference, see § 3280.4), or equal, must be supplied when LP-Gas cylinder(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 (CSA Group; incorporated by reference, see § 3280.4), 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 dwelling unit structure 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 (l)(3). The shutoff valve must be of the non-displaceable rotor type and conform to ANSI Z21.15 (CSA Group; incorporated by reference, see § 3280.4).

* * * * *

■ 36. Amend § 3280.706 by revising paragraphs (b)(1) and (3), and (d) to read as follows:

§ 3280.706 Oil piping systems.

* * * * *

(b) * * *

(1) Steel or wrought-iron pipe shall comply with ANSI/ASME B36.10 (incorporated by reference, see § 3280.4). Threaded copper or brass pipe in iron pipe sizes may be used.

* * * * *

(3) Copper tubing must be annealed type, Grade K or L conforming to ASTM B88 (incorporated by reference, see § 3280.4), or shall comply with ASTM B280 (incorporated by reference, see § 3280.4).

* * * * *

(d) *Joints for oil piping.* All pipe joints in the piping system, unless welded or brazed, shall be threaded joints which comply with ANSI/ASME B1.20.1 (incorporated by reference, see § 3280.4). The material used for brazing pipe connections shall have a melting temperature in excess of 1,000 °F.

* * * * *

■ 37. Amend § 3280.707 by revising paragraphs (a) introductory text, (d)(2), and (f) introductory text to read as follows:

§ 3280.707 Heat producing appliances.

(a) Heat producing appliances and vents, roof jacks and chimneys necessary for their installation in manufactured homes must be listed or certified for residential use by a nationally recognized testing agency.

* * * * *

(d) * * *

(2) All gas and oil-fired automatic storage water heaters shall have a recovery efficiency, E, and a standby

loss, S, as described below. The method of test of E and S shall be as described in section 2.7 of Gas Water heaters, Vol. I, Storage Water Heaters with Input/

Ratings of 75,000 BTU per hour or less, ANSI Z21.10.1 (CSA Group; incorporated by reference, see § 3280.4), except that for oil-fired units. CF = 1.0,

Q = total gallons of oil consumed and H = total heating value of oil in BTU/gallon.

TABLE 1 TO PARAGRAPH (d)(2)

Storage capacity in gallons	Recovery efficiency	Standby loss
Less than 25	At least 75 percent	Not more than 7.5 percent.
25 up to 35	00	Not more than 7 percent.
35 or more	00	Not more than 6 percent.

* * * * *

(f) *Oil-fired heating equipment.* All oil-fired heating equipment must conform to UL 307A (incorporated by reference, see § 3280.4) and be installed in accordance with NFPA 31 (incorporated by reference, see § 3280.4). Regardless of the requirements of the above-referenced standards, or any other standards referenced in this part, the following are not required:

* * * * *

■ 38. Amend § 3280.709 by

■ a. Revising paragraphs (a) introductory text and (g) introductory text;

■ b. Adding a reserved paragraph (g)(2); and

■ c. Revising paragraph (h).

The revisions and addition read as follows:

§ 3280.709 Installation of appliances.

(a) The installation of each appliance must conform to the terms of its listing and the manufacturer's instructions. Every appliance must be secured in place to avoid displacement. For the purpose of servicing and replacement, each appliance must be both accessible and removable.

* * * * *

(g) Solid fuel burning fireplaces and fireplace stoves listed for residential use may be installed in manufactured homes provided they and their installation conform to paragraphs (g)(1)(i) through (vii) of this section. A fireplace or fireplace stove is not to be considered as a heating facility for determining compliance with subpart F of this part.

* * * * *

(h) A corrosion-resistant water drip collection and drain pan must be installed under each storage tank-type water heater or a hot water storage tank that will allow water leaking from the water heater to drain to the exterior of the manufactured home, or to a drain.

■ 39. Revise § 3280.711 to read as follows:

§ 3280.711 Instructions.

Operating instructions for each appliance must be provided with the homeowner's manual. An additional copy of the operating instructions must be provided with each appliance unless the appliance is affixed with a permanent Quick Response (QR) Code.

■ 40. Amend § 3280.714 by revising paragraphs (a)(1) and (2) to read as follows:

§ 3280.714 Appliances, cooling.

(a) * * *

(1) Mechanical air conditioners shall be rated in accordance with the ANSI/AHRI Standard 210/240 with Addenda 1 and 2 (incorporated by reference, see § 3280.4) and certified by AHRI or other nationally recognized testing agency capable of providing follow-up service.

(i) Electric motor-driven unitary air-cooled air conditioners and heat pumps in the cooling mode with rated capacity less than 65,000 BTU/hour (19,045 watts), when rated at AHRI standard rating conditions in ANSI/AHRI Standard 210/240 with Addenda 1 and 2 (incorporated by reference, see § 3280.4), must have seasonal energy efficiency (SEER) values not less than as specified in 10 CFR part 430, Energy Conservation Program for Consumer Products: Central Air Conditioners and Heat Pumps Energy Conservation Standards.

(ii) Heat pumps must be certified to comply with all requirements of the ANSI/AHRI Standard 210/240 with Addenda 1 and 2 (incorporated by reference, see § 3280.4). Electric motor-driven vapor compression heat pumps with supplemental electrical resistance heat must be sized to provide by compression at least 60 percent of the calculated annual heating requirements for the manufactured home being served. A control must be provided and set to prevent operation of supplemental electrical resistance heat at outdoor temperatures above 40 °F (4 °C), except for defrost conditions. Electric motor-driven vapor compression heat pumps with supplemental electric resistance heat conforming to ANSI/AHRI

Standard 210/240 with Addenda 1 and 2, must have Heating Season Performance Factor (HSPF) efficiencies not less than as specified in the 10 CFR part 430, Energy Conservation Program for Consumer Products: Central Air Conditioners and Heat Pumps Energy Conservation Standards.

(iii) Electric motor-driven vapor compression heat pumps with supplemental electric resistance heat conforming to ANSI/AHRI Standard 210/240 with Addenda 1 and 2 (incorporated by reference, see § 3280.4), shall show coefficient of performance ratios not less than shown below:

TABLE 1 TO PARAGRAPH (a)(1)(iii)—COP

Temperature degrees Fahrenheit	Coefficient of performance
47	2.5
17	1.7
0	1.0

(2) Gas fired absorption air conditioners must be listed or certified in accordance with ANSI Z21.40.1, (CSA Group; incorporated by reference, see § 3280.4), and certified by a nationally recognized testing agency capable of providing follow-up service.

* * * * *

■ 41. Amend § 3280.715 by revising paragraphs (a)(1), (c), and (e) introductory text to read as follows:

§ 3280.715 Circulating air systems.

(a) * * *

(1) Supply air ducts, fittings, and any dampers contained there-in must be made of galvanized steel, tin-plated steel, or aluminum, or must be listed as Class 0 or Class 1 air ducts in accordance with UL 181 (incorporated by reference, see § 3280.4). Air ducts and air connectors located within three feet of the furnace discharge must be rated to withstand the maximum air discharge temperature of the equipment. Air connectors must not be used for exterior manufactured home duct connections. A duct system integral

with the structure must be of durable construction that can be demonstrated to be equally resistant to fire and

deterioration as required by this section. Ducts constructed of sheet metal must

be in accordance with the following table:

TABLE 1 TO PARAGRAPH (a)(1)—MINIMUM METAL THICKNESS FOR DUCTS ¹

Duct type	Diameter 14 in. or less	Width over 14 in.
Round	0.013	0.016
Enclosed rectangular	0.013	0.016
Exposed rectangular	0.016	0.019

¹ When “nominal” thickness are specified, 0.003 in. shall be added to these “minimum” metal thicknesses.

* * * * *

(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 (1”) 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 181A (incorporated by reference, see § 3280.4). Tapes and mastic closure systems used with factory-made flexible air ducts and air connectors shall be listed in accordance with UL 181B (incorporated by reference, see § 3280.4).

* * * * *

(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 (incorporated by reference, see § 3280.4). 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:

* * * * *

■ 42. Amend § 3280.801 by revising paragraphs (a) and (b) to read as follows:

§ 3280.801 Scope.

(a) This subpart I incorporates by reference NFPA 70 (incorporated by reference, see § 3280.4) including Part II of Article 550 of NFPA 70, and covers the electrical conductors and equipment installed within or on manufactured homes and the conductors that connect manufactured homes to a supply of electricity. However, Articles 550.4(A)

and 550.4(B) of NFPA 70 shall not apply.

(b) In addition to the requirements of this part and Part II of Article 550 of NFPA 70, the applicable portions of other Articles of NFPA 70 referenced in this part must be followed for electrical installations in manufactured homes. The use of arc-fault breakers under the NFPA 70, are only required for general lighting circuits. Smoke alarms installed on a dedicated circuit do not require arc fault protection. Wherever arc-fault breakers are provided, such use must be in accordance with NFPA 70. Wherever the requirements of these standards differ from NFPA 70, these standards apply.

* * * * *

■ 43. Amend § 3280.802 by revising paragraph (a)(21) to read as follows:

§ 3280.802 Definitions.

(a) * * *

(21) *Feeder assembly* means the overhead or under-chassis feeder conductors, including the grounding conductor, together with the necessary fittings and equipment, or a power supply cord approved for manufactured home use, designed for the purpose of delivering energy from the source of electrical supply to the distribution panelboard within each dwelling unit.

* * * * *

■ 44. Amend § 3280.803 by revising paragraphs (a) and (k)(1) and (3) to read as follows:

§ 3280.803 Power supply.

(a) The power supply to the manufactured home must be a feeder assembly consisting of not more than one listed 50 ampere manufactured home power supply cord, or a permanently installed circuit. A manufactured home that is factory equipped with gas or oil-fired heating equipment and cooking appliances is permitted to be provided with a listed power supply cord rated 40 amperes. This section does not apply to multi-dwelling unit manufactured homes.

* * * * *

(k) * * *

(1) One mast weatherhead installation installed in accordance with Article 230 of NFPA 70 (incorporated by reference, see § 3280.4), containing four continuous insulated, color-coded, feeder conductors, one of which shall be an equipment grounding conductor; or

* * * * *

(3) Service equipment installed in or on the manufactured home, provided that all of the following conditions are met:

(i) In its written installation instructions, the manufacturer must include information indicating that the home must be secured in place by an anchoring system or installed on and secured to a permanent foundation;

(ii) The installation of the service equipment complies with Article 230 of NFPA 70 (incorporated by reference, see § 3280.4). Exterior service equipment or the enclosure in which it is to be installed must be weatherproof, and conductors must be suitable for use in wet locations;

(iii) Bonding and grounding of the service must be in accordance with Article 250 of NFPA 70 (incorporated by reference, see § 3280.4);

(iv) The manufacturer must include in its installation instructions one method of grounding the service equipment at the installation site. The instructions must clearly state that other methods of grounding are found in Article 250 of NFPA 70;

(v) The minimum size grounding electrode conductor must be specified in the instructions; and

(vi) A red warning label must be mounted on or adjacent to the service equipment. The label must state the following: WARNING—DO NOT PROVIDE ELECTRICAL POWER UNTIL THE GROUNDING ELECTRODE(S) IS INSTALLED AND CONNECTED (SEE INSTALLATION INSTRUCTIONS).

■ 45. Amend § 3280.804 by:

■ a. Revising paragraphs (a) and (c);

■ b. Revising paragraph (g) introductory text;

■ c. Adding reserved paragraph (g)(2);

- c. Revising paragraph (k); and
- d. Adding paragraph (m).

The revisions and additions 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 for the mains shall be plainly marked, with the lettering at least ¼ inch high and visible when fuses are changed. See Article 110.22 of NFPA 70 (incorporated by reference, see § 3280.4), concerning the identification of each disconnecting means and each service, feeder, or branch circuit at the point where it originated, and the type of marking needed.

* * * * *

(c) A single disconnecting means must be provided in each dwelling unit, consisting of a circuit breaker, or a switch and fuses and its accessories, installed in a readily accessible location near the point of entrance of the supply cord or conductors into the dwelling unit.

* * * * *

(g) Branch-circuit distribution equipment must be installed in each dwelling unit and must include overcurrent protection for each branch circuit consisting of either circuit breakers or fuses.

* * * * *

(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 NFPA 70 (incorporated by reference, see § 3280.4). The disconnecting means shall be listed for use as service equipment. The disconnecting means may be combined with the disconnect required by paragraph (c) of this section. The disconnecting means shall be rated not more than the ampere supply or service capacity indicated on the tag required by paragraph (l) of this section.

* * * * *

(m) A service distribution panel must be factory installed and connected to the subpanels on multi-dwelling unit manufactured homes.

■ 46. Amend § 3280.805 by revising paragraphs (a)(1) and (a)(3)(iv) to read as follows:

§ 3280.805 Branch circuits required.

(a) * * *

(1) *Lighting.* For lighting, the number of 15 or 20 ampere lighting circuits is based on a 3 volt-amperes per square foot times the outside dimensions of each story of each dwelling unit (coupler excluded) divided by 120 volts times the amperes.

Example 1 to Paragraph (a)(1)

of Lighting Circuits = $(3 \times L \times W \times \# \text{ of Stories}) / (120 \times (15 \text{ or } 20))$

* * * * *

(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 NFPA 70 (incorporated by reference, see § 3280.4).

* * * * *

■ 47. Amend § 3280.806 by revising paragraphs (a)(2) and (d)(8) to read as follows:

§ 3280.806 Receptacle outlets.

(a) * * *

(2) Installed according to Article 406.3 of NFPA 70 (incorporated by reference, see § 3280.4).

* * * * *

(d) * * *

(8) At least one receptacle outlet shall be installed outdoors. Additional outdoor receptacles shall be installed in accordance with Article 210.52(E)(3) of NFPA 70 (incorporated by reference, see § 3280.4), except those balconies, decks, or porches with an area of less than 20 square feet are not required to have an additional receptacle installed.

* * * * *

■ 48. Amend § 3280.807 by revising paragraph (c) to read as follows:

§ 3280.807 Fixtures and appliances.

* * * * *

(c) Where a lighting fixture is installed over a bathtub or in a shower stall, it must be listed for wet locations. See also Article 410.410(D) of NFPA 70 (incorporated by reference, see § 3280.4).

* * * * *

■ 49. Amend § 3280.808 by revising paragraphs (a), (k), (l), and (p) 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 NFPA 70 (incorporated by reference, see § 3280.4) must be used in manufactured homes.

* * * * *

(k) Where outdoor or under-chassis line voltage (120 volts, nominal or higher) wiring is exposed to moisture or subject to physical damage, it must be

protected by a conduit or raceway approved for use in wet locations. The conductors must be suitable for use in wet locations.

(l) Outlet boxes of dimensions less than those required in table 314.16(A) of NFPA 70 (incorporated by reference, see § 3280.4), are permitted provided the box has been tested and approved for that purpose.

* * * * *

(p) A substantial brace for securing a box, fitting, or cabinet must be as described in Article 314.23(B) of NFPA 70 (incorporated by reference, see § 3280.4), 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.

* * * * *

■ 50. Amend § 3280.810 by revising paragraph (b)(3) to read as follows:

§ 3280.810 Electrical testing.

* * * * *

(b) * * *

(3) Electrical polarity checks to determine that connections have been made in accordance with applicable provisions of these standards and Article 550.17 of NFPA 70 (incorporated by reference, see § 3280.4). Visual verification is an acceptable electrical polarity check.

■ 51. Amend § 3280.811 by revising paragraph (b) introductory text 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 NFPA 70 (incorporated by reference, see § 3280.4). The loads identified in the table as “other load” and as “Remainder of other load” must include the following:

* * * * *

■ 52. Amend § 3280.1003 by revising paragraph (a)(1) to read as follows:

§ 3280.1003 Attached manufactured home unit separation.

(a) * * *

(1) Attached manufactured homes shall be separated from each other by a fire separation wall of not less than 1-hour fire-resistive rating with exposure from both sides on each attached manufactured home unit when rated based on tests in accordance with ASTM E119 (incorporated by reference, see § 3280.4).

* * * * *

PART 3282—MANUFACTURED HOME PROCEDURAL AND ENFORCEMENT REGULATIONS

■ 53. The authority citation for part 3282 continues to read as follows:

Authority: 15 U.S.C. 2697, 28 U.S.C. 2461 note, 42 U.S.C. 3535(d), 5403, and 5424.

■ 54. Amend § 3282.7 by revising paragraphs (t) and (v) and removing paragraph (oo) to read as follows:

§ 3282.7 Definitions.

* * * * *

(t) *Length of manufactured home* is defined in § 3280.2 of this chapter.

* * * * *

(v) *Manufactured home* is defined in § 3280.2 of this chapter.

* * * * *

§ 3282.8 [Amended]

■ 55. Amend § 3282.8 by removing paragraph (l).

■ 56. Revise § 3282.552 to read as follows:

§ 3282.552 Manufacturer reports for joint monitoring fees.

The manufacturer must submit to the IPIA in each of its manufacturing plants, and to HUD or to the Secretary's agent, a monthly production report that includes the serial numbers of each manufactured home manufactured and labeled at that plant during the preceding month. The report must also include the date of manufacture, State of first location of these manufactured homes after leaving the plant, type of unit, number of dwelling units, and any other information required under this part. For all homes to be completed pursuant to subpart M of this part, the production report must also include a brief description of the work to be completed on site. The State of first location is the State of the premises of the retailer or purchaser to whom the manufactured home is first shipped. The monthly report must be submitted by the 10th day of each month and contain information describing the manufacturer's previous month's

activities. The manufacturer is encouraged to submit the report electronically, when feasible.

PART 3285—MODEL MANUFACTURED HOME INSTALLATION STANDARDS

■ 57. The authority citation for part 3285 continues to read as follows:

Authority: 42 U.S.C. 3535(d), 5403, 5404, and 5424.

■ 58. Amend § 3285.5 by adding, in alphabetical order, definitions for “Peak cap assembly” and “Peak flip assembly” to read as follows:

§ 3285.5 Definitions.

* * * * *

Peak cap assembly means any roof peak assembly that is either shipped loose or site completed and is site installed to finish the roof ridge/peak of a home.

* * * * *

Peak flip assembly means any roof peak assembly that requires the joining of two or more cut top chord members on site. The cut top chords must be joined at the factory by straps, hinges, or other means.

* * * * *

■ 59. Amend § 3285.503 by revising paragraph (b) to read as follows:

§ 3285.503 Optional appliances.

* * * * *

(b) *Fireplaces and wood-stoves.* When not provided by the home manufacturer, fireplaces and wood-stoves must be listed for residential use and must be installed in accordance with their listings.

* * * * *

■ 60. Add § 3285.506 to subpart F to read as follows:

§ 3285.506 Testing and certification for fire sprinkler systems.

The installer shall ensure that a fire protection technician certifies and tests residential fire sprinkler systems on site in accordance with the home manufacturer's instructions and as outlined in § 3280.214 of this chapter. The fire protection technician conducting the required testing should complete and Fire Sprinkler System Certificate so that a required listed minimum water supply is reported as available for the system. The installer will provide the testing requirements specified in § 3280.612(a) of this chapter and maintain a copy of the test report collected from the fire protection technician.

■ 61. Amend § 3285.603 by revising paragraphs (d)(3) and (e)(1) to read as follows:

§ 3285.603 Water supply.

* * * * *

(d) * * *

(3) Only heat tape or pipe heating cable listed and certified for its intended purpose is permitted for use, and it must be installed in accordance with tape or cable manufacturer installation instructions.

(e) * * *

(1) The water system must be inspected and tested for leaks after completion at the site. The installation instructions must provide testing requirements that are in accordance with the piping manufacturer's instructions.

* * * * *

■ 62. Amend § 3285.801 by revising paragraph (f)(2) to read as follows:

§ 3285.801 Exterior close-up.

* * * * *

(f) * * *

(2) In which the roof pitch of the hinged roof is less than 7:12, including designs incorporating peak cap or peak flip assembly components; and

* * * * *

PART 3286—MANUFACTURED HOME INSTALLATION PROGRAM

■ 63. The authority citation for part 3286 continues to read as follows:

Authority: 42 U.S.C. 3535(d), 5404, and 5424.

■ 64. Revise § 3286.103 to read as follows:

§ 3286.103 DAPIA-approved installation instructions.

(a) *Providing instructions to purchaser or lessee.* (1) For each manufactured home sold or leased to a purchaser or lessee, the retailer must provide the purchaser or lessee with the manufacturer's DAPIA-approved installation instructions for the home, a copy of which is shipped with the home in accordance with § 3285.2 of this chapter.

(2) If the installation requires a design that is different from that provided by the manufacturer in paragraph (a)(1) of this section, the installation design and instructions must be prepared and certified by a professional engineer or registered architect, that have been approved by the manufacturer and the DAPIA as providing a level of protection for residents of the home that equals or exceeds the protection provided by the Federal installation standards in part 3285 of this chapter. The retailer or manufacturer must provide the installation design and instructions to the purchaser or lessee.

(b) *Providing instructions to installer.* When the retailer or manufacturer agrees to provide any set up in connection with the sale of the home, the retailer or manufacturer must provide to the licensed installer a copy of the approved installation instructions required in paragraph (a)(1) or (2) of this section or, as applicable, to each company or, in the case of sole proprietor, to each individual who performs setup or installation work on the home.

■ 65. Amend § 3286.205 by revising paragraph (d) to read as follows:

§ 3286.205 Prerequisites for installation license.

* * * * *

(d) *Insurance and either a surety bond or irrevocable letter of credit.* An applicant for an installation license must provide evidence of and must maintain, when available in the State of installation, insurance and either a surety bond or irrevocable letter of credit that will cover the cost of repairing all damage to the home and its

supports caused by the installer during the installation up to and including replacement of the home. HUD may require the licensed installer to provide proof of the surety bond or insurance at any time. The licensed installer must notify HUD of any changes or cancellations with the insurance coverage, surety bond, or irrevocable letter of credit.

■ 66. Amend § 3286.207 by revising paragraph (d) to read as follows:

§ 3286.207 Process for obtaining installation license.

* * * * *

(d) *Proof of insurance and either a surety bond or irrevocable letter of credit.* Every applicant for an installation license must submit the name and proof of the applicant's insurance carrier and the number of the policy, surety bond, or irrevocable letter of credit required in § 3286.205(d).

* * * * *

■ 67. Amend § 3286.209 by revising paragraph (b)(8)(vi) to read as follows:

§ 3286.209 Denial, suspension, or revocation of installation license.

* * * * *

(b) * * *

(8) * * *

(vi) Failure to maintain the insurance and either a surety bond or irrevocable letter of credit, required by § 3286.205(d).

* * * * *

■ 68. Amend § 3286.409 by revising paragraph (b) to read as follows:

§ 3286.409 Obtaining inspection.

* * * * *

(b) *Contract rights not affected.*

Failure to arrange for an inspection of a home within 10 business days will not affect the validity or enforceability of any sale or contract for the sale of any manufactured home.

* * * * *

Julia Gordon,

Assistant Secretary for Housing—Federal Housing Commissioner.

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