



MANUFACTURED HOUSING CONSENSUS COMMITTEE

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DRAFT MINUTES MHCC MEETING

December 2-4, 2014

Sheraton Pentagon City Hotel | 900 South Orme Street | Arlington, Virginia 22204

DRAFT MINUTES

MANUFACTURED HOUSING CONSENSUS COMMITTEE (MHCC) MEETING

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DAY 1: Tuesday, December 2, 2014

Call to Order

MHCC Chairman, Richard Weinert, called the meeting to order at 8:00 a.m. (Eastern).

Roll Call

Kevin Kauffman, Program Manager of the Administering Organization (AO) Home Innovation, called the roll and announced that a quorum was present. Guests were asked to introduce themselves. See Appendix A for a list of meeting participants.

Introduction and Opening Remarks

Pamela Beck Danner, Administrator of the Office of Manufactured Housing Programs (DFO), welcomed the MHCC committee members to the first face-to-face meeting of the committee since October 2012. Ms. Danner noted that this is a meeting of the Manufactured Housing Consensus Committee (MHCC) and that the meeting notice was published in the November 12, 2014 Federal Register. DFO Danner also provided background on the creation of the MHCC:

Section 604(a) of the National Manufactured Housing Construction and Safety Standards Act of 1974, as amended by the Manufactured Housing Improvement Act of 2000 (42 U.S.C. 5401 et seq.) (the Act) establishes the MHCC. Among other things, the MHCC is responsible for providing periodic recommendations to HUD to adopt, revise, and interpret the manufactured housing construction and safety standards. HUD's Manufactured Home Construction and Safety Standards are codified at 24 CFR part 3280. According to Section 604(a)(4) of the Act, the MHCC is required to consider revisions not less than once during each 2-year period.

DFO Danner thanked Toni Price and Jane Hofilena, BLH Technologies, for providing the meeting planning logistics and turned the floor over to Kevin Kauffman (AO).

Mr. Kauffman provided a brief summary of meeting procedures to ensure compliance with MHCC Bylaws and Robert's Rules of Order are followed. He also noted that all voting items would be followed-up by letter ballot and the vote would not be final until the letter ballot is complete providing members who were not present an opportunity to participate in the process.

Chairman Weinert announced that there was a packed agenda and asked committee members to keep on point and to also allow for public comments. Mr. Weinert acknowledged that it had been quite a while since the full committee had met in person and asked each member to introduce themselves and provide some insight into their backgrounds.

Manufactured Housing Program Updates

Richard Mendlen, Senior Structural Engineer, Office of Manufactured Housing Programs from HUD, provided a summary of Log Items to date and stated that all but three have been reconciled. It was noted that Log 13 and Log 23 unfortunately have not been located. Most Log Items, however, will be considered in the 4th Group of Standards Changes. See Appendix B for a list of the Docket.

Many committee members expressed general frustration in the process and wanted to know what happens to Log Items once they are approved by the MHCC.

To address committee members' concerns, DFO Danner introduced Aaron Santa Anna, HUD Assistant General Counsel for Regulations, who briefly provided an overview of the lengthy rulemaking process and announced that he would have a more detailed presentation following the lunch break on Day 2.

Mr. Kauffman gave a brief presentation on how proposed changes will be structured moving forward and detailed how to submit proposed changes using the online form.

Approval of the Minutes

Motion to approve the minutes of the June 26, 2014 MHCC Teleconference meeting

Maker: Frank Walter

Second: Leo Poggione

Meeting Vote: Unanimously Approved

Action Item 4: RV Park Model Memorandum dated Oct. 1, 2014

James Martin, Management Analyst, HUD Office of Manufactured Housing Programs, provided background information supporting the Oct. 1 HUD Memo(see Appendix C – Oct. 1, 2014 Memo and presentation).

Following a discussion regarding the rights of local jurisdictions, definitions of recreational vehicles and manufactured housing, and how these relate to Log Items 89, 99, and 105, the following actions were taken by the Committee (see a detailed list of Proposed Changes at www.hud.gov/mhs).

LOG 89: § 3282.8 Applicability

Motion to approve Log 89 as modified.

Maker: Mark Luttich

Second: Mark Luttich

Meeting Vote: 16-1-1

LOG 99: § 3282.8 Applicability

Motion to disapprove in favor of action on Log 89.

Maker: Frank Walter

Second: Ishbel Dickens

Meeting Vote: 18-0-0

LOG 105: § 3282.8 Applicability

Motion to disapprove in favor of action on Log 89.

Maker: Frank Walter

Second: Leo Paggione

Meeting Vote: 18-0-0

Motion that the Committee recommend to HUD that it release a memorandum explaining that the enforcement of the Oct 1 memorandum will be deferred until Log 89 becomes a Rule.

Maker: Manuel Santana

Second: Debra Blake

Motion passed with 1 abstention

Note: Action Item 4 has been resolved by the amended language to Log 89.

DFO Danner introduced other contractors that HUD has employed, Michael Henretty with SEBA Professional Service for the installation program for the HUD administered states; and Shelby Giles with Savan Group for the dispute resolution program for 23 states that do not have a dispute resolution program.

Lunch Break

Due to the late addition of several Log Items to review, the Agenda was modified to move the Subcommittee meetings until Day 3 and the Committee proceeded to review Log Items.

LOG 87: § 3280.112 Hallways

Motion to table Log 87 until the next MHCC meeting with a request for substantiating documents.

Maker: Manuel Santana Seconded: David Tompos
Meeting Vote: 18-0-0

LOG 90: § 3285.2 Manufacturer installation instructions

Manuel Santana provided some background on Log 90 and why he submitted it. Typical manufacturer's setup guides do not cover all possible installation types for a manufactured home.

Motion to approve Log 90 as modified.

Maker: Frank Walter Second: Ishbel Dickens
Meeting Vote: 12-6-0

LOG 91: § 3280.603 General requirements

Motion to accept Log 91.

Maker: Dominic Frisina Second: Leo Poggione
Meeting Vote: 16-1-0

LOG 92: § 3280.709 Installation of appliances

Motion to accept Log 92.

Maker: Leo Poggione Second: Debra Blake
Meeting Vote: 18-0-0

LOG 93: § 3280.709 Installation of appliances & § 3285.503 Optional appliances

Motion to divide Log 93 into two parts and handle them separately: Log 93-A – 3280.709(g) and Log 93-B – 3285.503(b) Fireplaces and wood stoves.

Maker: Ishbel Dickens Second: Tim O'Leary
The motion carried.

Motion to approve Log 93-A.

Maker: Ishbel Dickens Second: Michael Lubliner
Meeting Vote: 16-2-0

Motion to approve Log 93-B as modified.

Maker: Michael Wade Second: Tim O'Leary
Meeting Vote: 14-2-1

LOG 94: § 3280.707 Heat producing appliances

Motion to approve Log 94 as modified.

Maker: Manuel Santana Second: Dave Tompos
Meeting Vote: 17-1-0

LOG 95: § 3280.102 Definitions & § 3280.103 Light and ventilation

The discussion regarding Log 95 centered on whether a vote would be premature due to the fact that the GAO report is on the Agenda.

Motion to postpone until the Task Force has a chance to discuss the GAO Letter.

Maker: Mark Mazz

Second: Leo Poggione

The motion carried.

LOG 96: § 3280.2 Definitions

Motion to disapprove Log 96.

Maker: Manuel Santana

Second: Leo Poggione

Meeting Vote: 17-0-0

LOG 97: § 3280.707 Heat producing appliances

Motion to disapprove Log 97 in favor of action on Log 94.

Maker: Frank Walter

Second: Michael Lubliner

Meeting Vote: 17-0-0

LOG 98: § 3280.307 Resistance to elements and use

Motion to refer Log 98 to the Technical Systems Subcommittee

Maker: Frank Walter

Second: Michael Lubliner

The motion carried.

LOG 100: § 3280.204 Kitchen cabinet protection

Motion to refer Log 100 to the Structure and Design Subcommittee

Maker: David Tompos

Second: Frank Walter

The motion carried.

DAY 2: Wednesday, December 3, 2014

Chairman Weinert reconvened the meeting at 9:00 a.m.

DFO Danner welcomed Frank Vetrano, Deputy Assistant Secretary for Risk Management and Regulatory Affairs, HUD; and Joseph Hagerman, Policy Advisor, Department of Energy (DOE), who gave a summary presentation of the Manufactured Housing Working Group (MHWG) (see Appendix D).

Mr. Hagerman introduced Javier Ramirez, Mediator, Federal Mediation and Conciliation Service (FMCS), who facilitates regulatory negotiations; and Matthew Walker, Prime Consulting.

Mr. Hagerman stated that the creation of the MHWG was authorized under section 413 of the Energy Independence and Security Act of 2007 (EISA) and that they were tasked by the Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) to complete the Term Sheet for a proposed rule.

The big issue is cost, and making sure that this doesn't increase the cost of manufactured homes too much. There were general comments about how this was a good proposal and was created with help from many MHCC members and this should not be slowed down in the MHCC.

Mr. Hagerman answered questions from Committee members, said he would distribute the presentation to all Committee members, and thanked them for their time.

The Committee turned its attention again to the list of Log Items.

LOG 101: § 3280.611 Vents and venting

Motion to approve Log 101.

Maker: Mike Wade

Second: Manuel Santana

Meeting Vote: 17-1-0

LOG 102: § 3280.105 Exit facilities; exterior doors

Motion to refer Log 102 to the Structure and Design Subcommittee.

Maker: Ishbel Dickens

Second: Mark Mazz

Meeting Vote: Postponed.

Motion to postpone Log 102 until after the Attached Garage discussion on Day 3.

Maker: Manuel Santana

Second: Leo Paggione

The motion unanimously passed.

LOG 103: § 3280.808 Wiring methods and materials

Motion to refer Log 103 to the Technical Systems Subcommittee

Maker: Frank Walter

Second: David Tompos

Meeting Vote: The motion carried.

LOG 104: § 3285.5 Definitions & § 3285.801 Exterior close-up

Lois Starky provided background on the submittal of Log 104 and Manuel Santana provided drawings showing the difference between a peak cap and a peak flip used for the transportation of manufactured housing prior to installation.

Move to approve Log 104.

Maker: Michael Wade

Second: Manuel Santana

Meeting Vote: 17-0-0

LUNCH BREAK

Following the lunch break DFO Danner introduced Aaron Santa Anna, HUD Assistant General Counsel for Regulations, who presented information on the rulemaking process (Appendix E) and recent developments in incorporation by reference in Federal Regulations (Appendix F).

Mr. Santa Anna explained that the rulemaking process is lengthy due to required reviews by all major offices including the Office of the Inspector General (OIG), Office of Management and Budget (OMB), Office of Information and Regulatory Affairs (OIRA), and public comment. Chairman Weinert thanked DFO Danner and Mr. Santa Anna for the presentation and stated that since the MHCC began in 2002, some proposed changes were accepted and published and some have not been.

Mr. Santa Anna provided information regarding incorporation by reference (IBR) and provided *Federal Register* Vol. 78, No. 236 (73966-73992) as an example (attached to Appendix F).

The discussion turned to reference standards and the fact that reference standards are copyrighted materials and are not free, thus limiting the public's availability to comment. The MHCC was asked to review and approve a list of reference standards and provide descriptions.

Motion for the committee to recommend that HUD modify the contract with the AO to have the AO provide technical support regarding reference standard updates under Section 604(a)(3)(I) of the National Manufactured Housing Construction and Safety Standards Act of 1974 as amended by the Manufactured Housing Improvement Act of 2000.

Maker: Frank Walter

Second: Leo Poggione

The motion carried unanimously.

Manuel Santana suggested that if the task is to provide simple summaries then the Committee should be able to handle it.

Chairman Weinert adjourned the MHCC at 2:12 p.m. to allow the Technical Systems Subcommittee to convene.

Chairman Weinert reconvened the MHCC at 2:18 p.m.

[Report of Multifamily Housing Issue – Memorandum dated Oct. 3, 2014](#)

Mr. Lane Pethel, Manufactured Housing Specialist, Office of Manufactured Housing Programs, HUD, presented many extreme examples of configurations and DAPIA approved plans asking what could be the intent of these unusual layouts.

The MHCC was asked to clarify what defines a single-family dwelling and provide language to help manufacturers deal with these unusual situations such as when an eight bathroom home is installed in an area where the septic system can only handle up to a four bathroom home.

There was a general discussion on what happens when manufacturers build these configurations. The standards say that a HUD home has to be designed as a single-family home, and that's basically what the memo says. There is no way for HUD to regulate the intent on how the building is going to be used. Without having something written in the code specifically stopping these types of configurations, the most that can be done is to have the buyer sign their name on a statement promising that the home will be used as a single-family home. If the home does not have a HUD tag on it, then it's not a HUD home. The discussion turned to the rights of local jurisdictions.

Motion to refer the October 3 Memo (NEW AI-5) to the General Subcommittee

Maker: Leo Poggione

Second: Frank Walter

The motion carried unanimously.

AFTERNOON BREAK

[Added Agenda Item: Attached Garage Discussion](#)

Chairman Weinert read the June Memo from HUD.

Manuel Santana stated that he asked to give his presentation (see Appendix H) because he is passionate about the issue. He stated that AC letters are not for something that is new or different it is only for things that do not comply with the standard.

General Conversation – AC letters cost a lot of money, and they slow the process down. This cost increase will go right to the consumer, which could actually make the consumer not be able to afford the garage. Changes to get the house ready for a garage, or any add-on, should be done at the factory. It will be better implemented if it is done at the factory compared to onsite. It does not make sense to require an AC letter to add a garage when the

day after escrow, the homeowner can build his own garage the exact same way without an AC letter and no knowledge of how to keep the house in HUD Code compliance.

Lois Starkey stated that she would like to reopen the onsite construction issue because the proposed rule was intended to address some of these issues. It might be wise for HUD to reopen that rule to address some of the questions that are coming up with this issue.

DFO Danner, assisted by Jason McJury of IBTS, provided some background and stated that when HUD addressed this issue, there was some research done and issues were found with load bearing structures bringing homes out of compliance. Some of the issues were significant – both structural and non-structural. Homes coming from the factory appeared to be compliant but the onsite installation crew cut the heels of the truss off, and removed the gang plate at the corner of the truss and left the building in this condition. The removing of the eve also removed the diaphragm core which was not replaced. There were issues with ventilation – when they removed the eve, they removed the vents which disturbed the ventilation in the attic. Dormer trusses were added, which caused concentrated loads. Typically when a manufactured home is designed there is an attempt not to create any concentrated loads, the onsite construction created point loads when there were roof loads imposed on the site built dormer. Wind loads on the house from the garage roof diaphragm were not taken into account. There were three walled garages that relied on the exterior wall of the MH for transferring loads, and that wall in the MH was not designed to carry such loads.

Manuel stated that consumers want these add-ons and we need to make sure that provisions are in place to deal with these issues. We should examine this issue as a whole and not take the approach of looking at these isolated incidences. He recommended that HUD defer enforcement of this memo until this gets resolved by proper rulemaking.

DFO Danner stated that this memo is not a change in procedure or policy or enforcement.

Motion that HUD immediately consider suspending action and enforcement on the June 12th, 2014 Memo from Pamela Danner and consider the following recommendations:

- **If HUD wants to regulate add-ons, I recommend that HUD promulgate standards for add-ons as allowed in 3282.8(j).**
- **If HUD is concerned with proper oversight of site built accessory structures and alterations, I recommend that HUD make 3282.303(b) a mandatory part of the state plan instead of a suggested provision.**
- **If HUD wants all exit doors to discharge to the outdoors, I recommend that HUD develop an interpretative bulletin, revise 3280 and 3285 or enact an emergency rule to this end.**
- **If HUD is concerned with the dealers' ability to determine when a home is taken out of compliance, I recommend that HUD revise 3282.254 to reflect that concern.**

Maker: Frank Walter

Second: Leo Poggione

The motion carried unanimously.

DAY 3: Wednesday, December 4, 2014

Chairman Weinert welcomed everyone back for the third and final day of the MHCC meetings and introduced Micheal Henretty, SEBA. Mr. Henretty addressed the Committee regarding online training for the HUD licensing and training program for inspectors in default states for the installation program. The online training program will be available in two pilot states as early as March 2015 and full implementation would take about two years to complete. Installers who complete the training would be nationally certified for utilization in the default states (License would be active for three years) and all certified installers would be required to be bonded and insured. They are asking the industry to provide lists of installers.

There was concern that these inspections would slow down the process because you may not be able to proceed with construction without approval of the inspector. The challenge would be to find a spread of experts to do these inspections all across the state to minimize travel time to jobsites.

A discussion of training, requirements, logistics, and implementation followed. The Committee discussed options to the process to make it easier to complete multiple home inspections. How many inspections would be required – one or two? Should the inspections be for every home, or random? If there is reliance on photos, make sure that there is something special to identify the house in the photo to avoid the potential for fraud. When looking at quality of work – you cannot only rely on consumer complaints on items to know how the installers are failing – a review of inspection reports would be required to find noncompliance or installer issues.

The Committee suggested that the field of potential inspectors should include not only current employees of the – PIAs, but also include retired or former employees.

Mr. Henretty thanked the Committee for their time.

LOG 102: § 3280.105 Exit facilities; exterior doors
From postponement.

Motion to refer Log 102 to the Structure and Design Subcommittee.

Maker: Ishbel Dickens

Second: Mark Mazz

Motion carried.

Chairman Weinert adjourned the MHCC at 9:48 a.m. to allow the Subcommittees to convene.

Chairman Weinert reconvened the MHCC at 3:05 p.m.

Technical Systems Subcommittee Report

MHCC Technical Systems Subcommittee Chairman, Mark Luttich, provided a summary of actions taken in the Subcommittee meeting. The committee addressed each Log item after Mr. Luttich presented the Subcommittee's recommendation.

LOG 85: § 3280.801 Scope

Technical Systems Subcommittee recommends that the MHCC disapprove Log 85 because the Subcommittee does not want to pick and choose adoption of new codes on a section by section basis.

Motion to disapprove Log 85 because the MHCC does not want to pick and choose adoption of new codes on a section by section basis.

Maker: Manuel Santana Second: Jeffrey Legault

Meeting Vote: 15-1-1

LOG 86: § 3280.806 Receptacle outlets

Technical Systems Subcommittee recommends that the MHCC disapprove Log 86 because the Subcommittee does not want to pick and choose adoption of new codes on a section by section basis.

Motion to disapprove Log 86 because the MHCC does not want to pick and choose adoption of new codes on a section by section basis.

Maker: Frank Walter Second: Mark Luttich

Meeting Vote: 15-1-1

LOG 88: § 3280.715 Circulating Air Systems

Resolution of AI-1. Technical Systems Subcommittee recommends that the MHCC accept Log 88.

Motion to accept Log 88.

Maker: Mark Luttich Second: Michael Lubliner

Meeting Vote: 15-1-0

LOG 95: § 3280.102 Definitions & § 3280.103 Light and ventilation

Technical Systems Subcommittee recommends that the MHCC approve Log 95 as modified.

Motion to approve Log 95 as modified.

Maker: Mark Luttich Second: Tim O'Leary

Meeting Vote: 16-0-0

LOG 98: § 3280.307 Resistance to elements and use

Technical Systems Subcommittee recommends that the MHCC approve Log 98.

Motion to approve Log 98.

Maker: Tim O'Leary Second: Debra Blake

Meeting Vote: 16-0-0

LOG 103: § 3280.808 Wiring methods and materials

Technical Systems Subcommittee recommends that the MHCC approve Log 103 as modified.

Motion to approve Log 103 as modified.

Maker: Tim O'Leary Second: Debra Blake

Meeting Vote: 16-0-0

Structure and Design Subcommittee Report

MHCC Structure and Design Subcommittee Chairman, David Tompos, provided a summary of action taken in the Subcommittee meeting. The committee addressed each Log item after Mr. Tompos presented the Subcommittee's recommendation.

Action Item-3 Southern Yellow Design Values

Mr. Tompos informed the MHCC of the actions the Structure and Design Subcommittee and that the Subcommittee recommends that the MHCC request HUD to consider an additional delay in enforcement until six months after the MHCC has had a chance to review and take action on the revised Southern Yellow Pine Values.

Motion to request HUD to consider an additional delay in enforcement until six months after the MHCC has had a chance to review and take action on the revised Southern Yellow Pine values.

Maker: Michael Wade

Second: Jeffrey Lagault

The motion carried.

LOG 1: Structure and Design Subcommittee recommends that the MHCC disapprove based on technical deficiencies.

Motion to disapprove Log 1 based on technical deficiencies.

Maker: David Tompos

Second: Ishbel Dickens

Meeting Vote: 16-0-0

LOG 100: The MHCC was informed of the action to refer Log 100 to Manuel Santana.

LOG 102: Structure and Design Subcommittee recommends that the MHCC disapprove because the proposal is incomplete.

Motion to disapprove based on the Structure and Design Subcommittee's recommendation.

Maker: David Tompos

Second: Tim O'Leary

Meeting Vote: 16-0-0

DFO Danner congratulated the MHCC and thanked them for their time and noted that the plan is to have another MHCC meeting early summer 2015. As to terms that have expired, they will continue in force until there are replacements. The objective is to have three-year terms not to exceed two consecutive terms.

Toni Price, BLH Technologies, thanked participants for their time and provided information on how to complete and file expense reports.

Kevin Kauffman (AO) provided information on online submittal for both applications

(<http://mhcc.homeinnovation.com/Application.aspx>) and proposed changes

(<http://mhcc.homeinnovation.com/>)

Chairman Weinert again thanked the Committee for their time and adjourned the meeting at 4:50 p.m.



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MHCC MEETING

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APPENDIX A: PARTICIPANT LIST



HUD Manufactured Housing Consensus Committee Meeting

December 2-4, 2014 • Sheraton Pentagon City, Arlington, Virginia



Participant List

Manufactured Housing Consensus Committee Members

Debra Blake

Deputy Director
Arizona Department of Fire, Building and Life
Safety
Suite 100
1110 West Washington Street
Phoenix, AZ 85007
Phone: 602-364-1022
E-mail: debra.blake@dfbls.az.gov

James Demitrus

Commissioner
Ohio Manufactured Homes Commission
8974 Wood Thrush Drive
Streetsboro, OH 44241
Phone: 330-626-5941
E-mail: portagepacer@aol.com

Ishbel Dickens

Executive Director
National Manufactured Home Owners
Association
P.O. Box 22346
Seattle, WA 98112
Phone: 206-851-6385
E-mail: ishbel@nmhoa.org

William Freeborne

Mechanical Engineer
Apartment 1010
901 North Pollard Street
Arlington, VA 22203
Phone: 301-467-2662
E-mail: wfreeborne@aol.com

Dominic Frisina

Vice President
RoMar Homes, Inc.
10316 Hartstown Road
Espyville, PA 16424
Phone: 724-301-0921
E-mail: dominic@romarhomes.com

Rick Hanger

Program Manager
Colorado Division of Housing
Suite 321
1313 Sherman Street
Denver, CO 80203
Phone: 303-864-7833
E-mail: rick.hanger@state.co.us

Jeffrey T. Legault, P.E.

Director, Product Design and Engineering
Skyline Corporation
2520 By-Pass Road
Elkhart, IN 46514
Phone: 574-294-6533
E-mail: jlegault@skylinecorp.com

Michael Lubliner

Senior Building Science Specialist
Washington State University – Extension Energy
Program
905 Plum Street, S.E.
Olympia, WA 98502
Phone: 306-951-1569
E-mail: lublinerm@energy.wsu.edu

Mark Luttich
Department Director
Nebraska Public Service Commission
300 The Atrium
1200 N Street
Lincoln, NE 68508
Phone: 402-471-0518
E-mail: mark.luttich@nebraska.gov

Mark J. Mazz
Mark J. Mazz, A.I.A., L.L.C.
4016 Jefferson Street
Hyattsville, MD 20781
Phone: 301-440-4276
E-mail: mark.j.mazz@verizon.net

Timothy J. O'Leary
Manufactured Home Owner
69 East Prospectors Drive
Cascade, ID 83611
Phone: 208-859-0432
E-mail: idahoinspector@frontier.com

Leo Poggione
President
Craftsman Home
P.O. Box 7036
Reno, NV 89510
Phone: 775-853-3004
E-mail: leo@forahouse.com

Manuel Santana
Director of Engineering
Cavco Industries
Suite 800
1001 North Central Avenue
Phoenix, AZ 85004
Phone: 602-283-9228
E-mail: manuels@cavco.com

Timothy Sheahan
President
National Manufactured Home Owners
Association
2907-2 South Santa Fe Avenue
San Marcos, CA 92069
Phone: 760-727-4495
E-mail: tpsheahan@cox.net

David Tompos
President
NTA, Inc.
305 North Oakland Avenue
Nappanee, IN 46550
Phone: 574-773-7975
E-mail: tompos@ntainc.com

Michael Wade
Director of Manufacturing
Cavalier Homes, Inc.
P.O. Box 390
144 Corporate Way
Addison, AL 35540
Phone: 256-747-8589
E-mail: mwade@cavhomesinc.com

Frank Walter, P.E.
Consulting Civil Engineer
3609 Sprucedale Drive
Annandale, VA 22003
Phone: 703-941-8942
E-mail: fandrwalter@verizon.net

Richard Weinert
Deputy Director
California Department of Housing and
Community Development
2020 West El Camino Avenue
Sacramento, CA 95833
Phone: 916-263-2966
E-mail: richard.weinert@hcd.ca.gov

U.S. Department of Housing and Urban Development

Frank Vetrano

Deputy Assistant Secretary for Risk
Management and Regulatory Affairs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-3134
E-mail: Frank.R.Vetrano@hud.gov

Amy Brown

Assistant General Counsel
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-3826
E-mail: Amy.L.Brown@hud.gov

Tracey Dunn

Congressional Liaison
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-2403
E-mail: Tracey.Dunn@hud.gov

Warren Friedman

Senior Advisor
Office of Healthy Homes and Lead Hazard Control
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-7574
E-mail: Warren.Friedman@hud.gov

Janette Hays

Office of Insured Housing
Office of General Counsel
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-2894
E-mail: Janette.M.Hays@hud.gov

David Jacobs

Office of General Counsel
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-755-4973
E-mail: david_e_jacobs@hud.gov

Rebecca Schatz

Presidential Management Fellow
Office of Housing
Federal Housing Administration
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-2012
E-mail: Rebecca.S.Schatz@hud.gov

Ann Vom Eigen

Attorney Advisor
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-245-4947
E-mail: Ann.H.Vomeigen@hud.gov

HUD Office of Manufactured Housing Programs Staff

Pamela Beck Danner

Administrator
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-7112
E-mail: Pamela.B.Danner@hud.gov

Teresa Payne

Deputy Administrator
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-5216
E-mail: Teresa.L.Payne@hud.gov

Eric Bers

General Engineer
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-2123
E-mail: Eric.L.Bers@hud.gov

Adrian Browner

Program Analyst
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-4532
E-mail: Adrian.C.Browner@hud.gov

Vic Ferrante

Mechanical Engineer
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-5605
E-mail: Victor.J.Ferrante@hud.gov

Leo Huott

Management Analyst
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-4538
E-mail: Leo.S.Huott@hud.gov

James Martin

Management Analyst
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-2731
E-mail: James.I.Martin@hud.gov

Patricia McDuffie

Manufactured Housing Specialist
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-5607
E-mail: Patricia.A.McDuffie@hud.gov

Richard Mendlen

Senior Structural Engineer
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-5608
E-mail: Richard.A.Mendlen@hud.gov

Lane Pethel

Manufactured Housing Specialist
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-5600
E-mail: Hubert.L.Pethel@hud.gov

Demetress Stringfield

Management Analyst
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-2239
E-mail: Demetress.E.Stringfield@hud.gov

Angelo Wallace

Manufactured Housing Specialist
Office of Manufactured Housing Programs
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-3848
E-mail: Angelo.M.Wallace@hud.gov

HUD Office of General Counsel Staff**Aaron Santa Anna**

Assistant General Counsel for Regulations
U.S. Department of Housing and Urban
Development
451 7th Street, S.W.
Washington, DC 20410
Phone: 202-402-5300
E-mail: Aaron.SantaAnna@hud.gov

U.S. Department of Energy**Joseph W. Hagerman**

Senior Policy Advisor
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585
Phone: 202-586-4549
E-mail: joseph.hagerman@ee.doe.gov

HUD Support Services Contractor Personnel***MHCC Administering Organization Staff*****Tanya Akers**

Home Innovation
400 Prince George's Boulevard
Upper Marlboro, MD 20774
Phone: 888-602-4663
E-mail: MHCC@homeinnovation.com

Kevin Kauffman

Home Innovation
400 Prince George's Boulevard
Upper Marlboro, MD 20774
Phone: 888-602-4663
E-mail: MHCC@homeinnovation.com

Monitoring Contractor Staff

Jason McJury, P.E.

Director
Federal Services
Institute for Building Technology and
Safety, Inc.
45207 Research Place
Ashburn, VA 20147
Phone: 703-481-2000, x138
E-mail: jmcjury@ibts.org

Meeting Planner Staff

Jane Hofilena

Logistics Specialist
BLH Technologies, Inc.
Suite 300
1803 Research Boulevard
Rockville, MD 20850
Phone: 240-399-8742
E-mail: jhofilena@blhtech.com

Antoinette (Toni) Price

Deputy Project Director
BLH Technologies, Inc.
Suite 300
1803 Research Boulevard
Rockville, MD 20850
Phone: 240-399-8727
E-mail: aprice@blhtech.com

Other Attendees

Ryan Black

Legislative Counsel
Office of Senator Joe Donnelly
720 Hart Senate Office Building
Washington, DC 20510
Phone: 202-224-4814
E-mail: ryan_black@donnelly.senate.gov

Duanne Farrell

Vice President, Government Affairs
Recreation Vehicle Industry Association
1896 Preston White Drive
Reston, VA 20190
Phone: 703-620-6003, x315
E-mail: dfarrell@rvia.org

Paul DeYoung

Savan Group
Suite 250
2300 Clarendon Boulevard
Arlington, VA 22201
Phone: 703-666-8045
E-mail: pdeyoung@savangroup.com

Shelby Giles

Senior Consultant
Savan Group
Suite 250
2300 Clarendon Boulevard
Arlington, VA 22201
Phone: 571-385-4773
E-mail: sgiles@savangroup.com

Adam Ellis

Intern
Office of Senator Dan Coats
Apartment 203
411 Second Street, S.E.
Washington, DC 20003
Phone: 317-509-5390
E-mail: ellisac@uindy.edu

Michael S. Henretty

SEBA Professional Services, LLC
Suite 500
1325 G Street, N.W.
Washington, DC 20005
Phone: 202-552-7356

Jenny Hodge

Vice President
National Communities Council
Manufactured Housing Institute
1655 North Fort Myer Drive
Arlington, VA 22209
Phone: 703-558-0666
E-mail: jhodge@mfghome.org

Javier Ramirez

Commissioner
Federal Mediation and Conciliation Services
Suite 203
908 North Elm Street
Hinsdale, IL 60521
Phone: 630-887-4762
E-mail: jramirez@fmcs.gov

Robert Sale

Government Relations Representative
International Code Council
500 New Jersey Avenue, N.W.
Washington, DC 20001
Phone: 202-370-1800
E-mail: rsale@iccsafe.org

Daniel Soso

Broydrick & Associates
Apartment 101
22-1 L Street, N.W.
Washington, DC 20037
Phone: 773-655-3494
E-mail: soso.daniel@gmail.com

Lois Starkey

Vice President
Regulatory Affairs
Manufactured Housing Institute
1655 North Fort Myer Drive
Arlington, VA 22209
Phone: 703-558-0654
E-mail: lstarkey@mfghome.org

Majmudar Veeral

President and Chief Executive Officer
Savan Group
Suite 250
2300 Clarendon Boulevard
Arlington, VA 22201
Phone: 703-672-0010
E-mail: vmajmudar@savangroup.com

Matt Wald

Executive Director
Park Model RVs
Recreation Vehicle Industry Association
1896 Preston White Drive
Reston, VA 20190
Phone: 703-620-6003, x313
E-mail: mwald@rvia.org

Matthew Walker

U.S. Department of Energy Consultant
Navigant Consulting, Inc.
Suite 700
1200 19th Street, N.W.
Washington, DC 20036
Phone: 202-481-8482
E-mail: matthew.walker@navigant.com

Mark Weiss

Manufactured Housing Association for
Regulatory Reform
1331 Pennsylvania Avenue, N.W.
Washington, DC 20004
Phone: 202-783-4057
E-mail: mmarkweiss@aol.com

Mark Weller

Dentons US, LLP
Suite 600
1301 K Street, N.W.
Washington, DC 20005
Phone: 202-408-6400
E-mail: mark.weller@dentons.org



MANUFACTURED HOUSING CONSENSUS COMMITTEE

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MHCC MEETING
December 2-4, 2014

APPENDIX B: MHCC DOCKET SUMMARY LOG ITEMS 1 TO 86

**MHCC DOCKET
LOG ITEMS: 1 - 86**

Log#	Date Entered	Citation	First Name	Last Name	Date to MHCC	MHCC Action	Date to HUD	Subcommittee	Topic & Notes	Status
2	07/31/2003	3280.112	Earl A.	Gilson	10/2010-Preliminary Action 3-2011 SC	APR	12/1/2011	General	Accessibility: Extend hall width to 30 inches (from 28 inches). Handled by a letter ballot.	COMPLETE; 12/2011 Ballot See Log 87
3	07/31/2003	3280.105.2(b)	Earl A.	Gilson	10/2010-Preliminary Action 4-2011 SC	APR	12/1/2011	Technical Structure & Design	Accessibility: Increase door width to 32 inches (from 28 inches)	COMPLETE; 10/2011 Meeting Voice Vote
13	02/23/2004	3280.710	Dana C.	Roberts	3/2008 P&P Report - Status Unknown	A		Technical Systems	Kitchen Range Venting: Allow certain types of vents to not discharge to the exterior.	Unable to locate the proposal or date to HUD
17	11/15/2004	3280.802(42)	Kirk	Schirra	6/2008 P&P Report	APR	3/2011	Technical Systems	Electrical: Provide definition for AFCIs. Related to Log #4 for 3280.	COMPLETE; March 2011 Minutes Voted to Accept in Principle
19	11/15/2004	3280.804(m) (New)	Kirk	Schirra	6/2008 P&P Report	APR	3/1/2011	Technical Systems	Electrical: Require AFCIs for certain branch circuits in bedrooms.	COMPLETE; March 2011, Accepted in Principle. Similar to Log #4 and Log #5
20	08/10/2005	3280.403, 3280.404, 3280.405, and 3280.508(e)	Mark A.	Nunn	6/2008 P&P Report	APR	12/2012 Ballot	Technical Systems	Windows and Doors: Update to more recent editions of AAMA Standards	COMPLETE; 1/2013 Ballot - See Log 81-83
23	05/21/2007	3280.607(B)3i	Ross	Kinzler	12/2009 Ballot	APR	12/2009 Ballot	Technical Systems	Accessibility: Remove requirements for 1 inch extension at water receptor for roll in showers.	COMPLETE; 12/2009 Ballot Unable to locate the proposal or date to HUD
25	11/28/2007	3280.103	Tom	Neltner	3/2011 Meeting Agenda-SC	APR	12/2012 Ballot	Technical Systems	Indoor Air Quality: Optional compliance with ASHRAE 62.2 Permitted	COMPLETE; 1/2013 Ballot
59	12/03/2007	3280.103	Michael	Lubliner	6/2008 P&P Report	APR	12/2012 Ballot	Technical Systems	Indoor Air Quality: Require compliance with ASHRAE 62.2	COMPLETE; 1/2013 Ballot See Log 25
63	12/03/2007	3280.505	Michael	Lubliner	3/2011 - SC	MHCC Tabled 10/2012	12/2011	Technical Systems	Ventilation: Require management of exterior envelope penetrations to minimize air leakage	MHCC Tabled 10/2011 (sub recommends R) MHCC Tabled 10/2012
64	12/03/2007	3280.506(b)	Michael	Lubliner	3/2011 - SC	MHCC Tabled 10/2012	12/2011	Technical Systems	Energy Conservation: Control insulation compression.	MHCC Tabled 10/2012 Meeting
71		3280.703 & 3280.707(d)(2)	Donald	Emen		A	12/2012 Ballot	Technical Systems	Tankless Gas Water Heaters	COMPLETE
74	06/09/2010	3280.203(a)(1)(vi)	David A.	Tompos	3/2011 Meeting Agenda-SC	A	12/2011	Technical Structure & Design	Material: Clarify material thickness and allow vinyl material as an option.	COMPLETE; 10/2011 Meeting Voice Vote
75	07/06/2010	3280.715(a)(4)	Michael	Lubliner	11/2010 Ballot	A	11/2010 Ballot	Technical Systems	Ventilation: Require duct leakage test protocol.	COMPLETE; 11/2010 Ballot ; Tabled by HUD / DOE

**MHCC DOCKET
LOG ITEMS: 1 - 86**

Log#	Date Entered	Citation	First Name	Last Name	Date to MHCC	MHCC Action	Date to HUD	Subcommittee	Topic & Notes	Status
76	07/27/2010	3280.4 and 3280.210	Lois	Starkey	10/10/2011	APR	10/20/2011	Technical Structure & Design	Safety: Provide conditions for residential sprinkler installation for correlation with private sector codes for housing.	COMPLETE; 10/2011 Meeting Voice Vote
77	11/16/2010	3280.303(b)	Michael	Wade	7/1/2011	A	12/2012 Ballot	Technical Structure & Design	Quality Control: Insure that work is completed using approved quality assurance manual.	COMPLETE; 1/2013 Ballot
78	11/22/2010	3280.304(a)	Michael	Wade	7/1/2011	A	12/2011	Technical Structure & Design	Material: Moisture content in dimensional lumber. Limit to 19%	Open – Returned to the Design & Structure Subcommittee; COMPLETE
79	04/18/2011	3280.304	Matthew	Dobson	9/30/2011	A	12/2012 Ballot	Technical Structure & Design	Vinyl Siding Issue	COMPLETE; 1/2013 Ballot
80	09/03/2011	3280.406 (new)	James P.	Van Schoyck	10/1/2012	Tabled	10/2012 Meeting	Technical Structure & Design	Formaldehyde Testing	Tabled 10/2012 Meeting
81	12/18/12	3280.403	Robert	Luter	6/26/2014	A	1/31/2013	Technical Structure & Design	AAMA 1701.2-12 Windows and Sliding Glass Doors	Complete; 10/2014 Ballot
82	12/18/2012	3280.404	Robert	Luter	6/26/2014	A	1/31/2013	Technical Structure & Design	AAMA 1704-12 Egress Windows	Complete; 10/2014 Ballot
83	12/18/2012	3280.405	Robert	Luter	6/26/2014	A	1/31/2013	Technical Structure & Design	AAMA 1702.2-12 Exterior Passage Doors	Complete; 10/2014 Ballot
84	12/18/2012	3280.813(b)	John	Walters	6/26/2014	A	1/31/2013	Technical Systems	Revise Required Label	Complete; 10/2014 Ballot
85	06/21/2013	3280.801	Vince	Baclawski	6/26/2014		7/9/2013	Technical Systems	NEC 2011	Open - Rejected by Technical Systems Subcommittee
86	06/21/2013	3280.806	Vince	Baclawski	6/26/2014		7/9/2013	Technical Systems	Tamper Resistant Receptacle Outlets	Open - Rejected by Technical Systems Subcommittee
CP4		3280.304	MHCC			A		Technical Structure & Design	ASCE 7-05	Complete; 1/2013
CP5		3280.103	MHCC			A		Technical Systems	Delete 90 CFM for Whole House	Complete; 1/2014
INSTALLATION LOG ITEMS										
1	10/4/2004	3285 Enitre Document	Boone Smith	Morris	4/2006		2/2004	Technical Structure and Design	Alternative Foundation Design/Ground Anchor Standard: Reccomendation to use an alternative foundation system. No specific language provided.	Tabled 10/2012 Meeting
2	01/25/2010	3285.203	Susan	Brenton	03/01/2011	APR	12/1/2011	Technical Structure and Design	Site Work: Requires drainage form the home consistent with Local AHJ rules.	COMPLETE; 10/2011 Meeting Voice Vote; Cannot locate a copy of the MHCC modified vote 10/19/2011



MHCC MEETING
December 2-4, 2014

APPENDIX C: RV PARK MODEL OCT 1 MEMO AND PRESENTATION

By James Martin



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-8000

OCT - 1 2014

OFFICE OF HOUSING

MEMORANDUM FOR: RVIA, MHI, MHARR, MHCC, PIAs, SAAs

FROM: Pamela Beck Danner, Administrator
Office of Manufactured Housing Programs

SUBJECT: RV Exemption under Manufactured Housing Act

HUD's Office of Manufactured Housing Programs has become aware of a misunderstanding and misinterpretation of HUD's code, regulations and the National Manufactured Housing Construction and Safety Standards Act (Manufactured Housing Act). This memorandum is intended to reiterate HUD's longstanding interpretation of its statute, regulations, and accompanying guidance.

Several manufacturers have produced units marketed as "Park Model RVs" believing these units to fall under HUD's Recreational Vehicle (RV) exemption from HUD's code and regulations. Such manufacturers have purportedly relied on Recreation Vehicle Industry Association's (RVIA) 2012 Standards Bulletin (SNB-23/12) to measure square footage for the exemption under a voluntary standard (ANSI 119.5) used by RVIA in connection with its own labeling program.

After examining RVIA's Standards Bulletin, HUD finds that this bulletin misinterprets HUD's authoritative Interpretative Bulletin A-1-88 and provides inaccurate instruction on the proper measurement for the RV exemption to HUD's code that are inconsistent with HUD's application of this guidance. The proper measurement for this exemption is set forth in 24 CFR § 3282.8(g) and Interpretative Bulletin A-1-88. **As a reminder, no guidance interpreting HUD's code, regulations, or Interpretative Bulletins originating from any entity other than HUD can be relied upon as authoritative.** Additionally, compliance with a voluntary standard such as ANSI 119.5 cannot exempt manufacturers from Federal Law, HUD code, HUD regulations, or HUD Interpretative Bulletins. Producing units in violation of HUD code, regulations, or Interpretative Bulletins, even while relying on non-HUD interpretations, does not mitigate or excuse any failure to comply.

Measuring square footage for the RV exemption is solely based on the existing HUD code, regulations, and Interpretative Bulletins in place since 1988. Specifically, HUD's Interpretative Bulletin A-1-88 provides a clear, uniform standard for measuring square footage for the RV exemption. Under A-1-88, square footage encompasses the full width and length of a unit, including exterior features such as "all siding, corner trim, molding, storage space, and area enclosed by windows, but not the roofing overhang". The clear intention of the phrase roofing

overhang is that the structure excluded must be a free hanging extension of the roof beyond the furthest point of the unit's exterior walls. Any suggestion that this "overhang" includes any area that needs structural support, (e.g., that extends no more than 24 inches beyond the furthest point of the unit's exterior walls) is contrary to the clear intent of the Interpretative Bulletin. Porches, which are constructed as part of a unit during manufacture, and which share the unit's roof and chassis, **must** be included in determining a unit's square footage. Only true roofing overhangs as described above may be excluded.

HUD is committed to ensuring the proper consideration and compliance with its regulation of manufactured housing, including exemption to its regulations. To that end, HUD will ask the Manufactured Housing Consensus Committee at its next meeting whether the MHCC wishes to recommend to HUD modification of HUD's current RV exemption.

Notwithstanding this intended future consideration, HUD continues to be committed to ensuring homeowners have access to safe, affordable housing as contemplated by the current HUD code and associated regulations. Therefore, HUD will commence reviewing for compliance its 1988 standard for measurement to ensure that units over 400 square feet meet HUD's building standards for manufactured homes that enter the first stage of production on or after April 1, 2015.

We request that the third party inspection agencies forward this memorandum to their manufacturer clients and that RVIA forward it to their members. Should you have any questions, feel free to contact the Office of Manufactured Housing Programs at 202-708-6423.



Federal Manufactured Housing Program

Background to the RV Exemption and Park Model RV Issue

Presented by:

James Martin
Presidential Management Fellow/Management Analyst
HUD Office of Manufactured Housing Programs

HUD's MISSION:

"TO CREATE STRONG, SUSTAINABLE, INCLUSIVE COMMUNITIES AND QUALITY AFFORDABLE HOMES FOR ALL."

1



Program Description and Mission

- The National Manufactured Housing Act of 1974, as amended in 2000, established the statutory authority and regulatory framework for the preemptive Federal Manufactured Housing Standards and the Regulations that are in use and effect today.
- The Act authorized HUD to regulate the design, construction, installation, and dispute resolution of all new manufactured housing in the United States.
- The Office of Manufactured Housing Programs (OMHP) is responsible for administering the Act and carrying out its mission of protecting the quality, durability, safety, and affordability of manufactured homes.

2



What Is A Manufactured Home?

- THE HUD standards define a manufactured home as:

"A STRUCTURE, TRANSPORTABLE IN ONE OR MORE SECTIONS, WHICH IN THE TRAVELING MODE IS EIGHT BODY FEET OR MORE IN WIDTH OR FORTY BODY OR MORE IN LENGTH OR WHEN ERECTED ON SITE IS 320 OR MORE SQUARE FEET (EMPHASIS ADDED), AND WHICH IS BUILT ON A PERMANENT CHASSIS AND DESIGNED TO BE USED AS A DWELLING WITH OR WITHOUT A PERMANENT FOUNDATION WHEN CONNECTED TO THE REQUIRED UTILITIES, AND INCLUDES THE PLUMBING, HEATING, AIR CONDITIONING, AND ELECTRICAL SYSTEMS CONTAINED IN THE STRUCTURE..."

- THE HUD standards and regulations do not apply to modular or other types of factory-built housing or recreational vehicles exempt pursuant to 24 CFR 3282.8(g).

3



The RV Exemption

4



The RV Exemption

- 1974 – Initial Year of the Manufactured Housing Act
 - No specific “RV Exemption.” Structures with an area measuring **less than 256 square feet** exempt from the Act and its associated regulations.
- 1976 – First “RV Exemption”
 - Exempts “Recreational Vehicles” from Act
 - “Recreational Vehicle” defined as “a vehicle, **regardless of size**, which is not designed to be used as a permanent dwelling, and in which the plumbing, heating, and electrical systems contained therein may be operated without connection to outside utilities and which are self-propelled or towed by a light duty vehicle.”

5



RV Exemption (Continued)

- 1980 – Manufactured Housing Act Amended
 - Any structures with an area measuring **less than 320 square feet** exempted from act (expansion from previous 256 sq. ft. limit)
- 1981 – RV Exemption Expanded – 24 CFR 3282.8
 - Previous requirement for self-contained utilities removed.
- 1982 – RV Exemption Expanded Again – 24 CFR 3282.8(g) (**Current Version**)
 - Recreational Vehicle Definition expanded using 4 part test. A unit qualifies as a RV if:
 1. Built on a single chassis
 2. 400 square feet or less when measured at the largest horizontal projections
 3. Self-propelled or permanently towable by a light duty truck
 4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

6



Measuring 400 Square Feet

- 24 CFR 3282.8(g) – RV Exemption – Units exempt if measure less than 400 square feet in area.
- 1988 – Interpretative Bulletin A-1-88 – Guidance for Measuring for RV Exemption
 - Published in 1988 due to confusion concerning proper method of measurement.
 - “Measurements shall be taken on the exterior of the home. The square footage includes all siding, corner trim, including storage space, and area enclosed by windows, but not the roofing overhang.”
 - Since 1988, Interpretative Bulletin A-1-88 has been the **definitive standard** for measuring square footage for the purpose of qualifying under the RV Exemption.

7



Park Model RVs

- Units produced with the intent to be sited in campgrounds and other locations for seasonal, non-residential, temporary use.
- PMRVs are exempt from HUD code if meet 4-prong test under 24 CFR 3282.8(g).
- Area of 320-400 square feet.



Examples of Park Models measuring 400 sq. ft. or less

8



RVIA Bulletin SNB-23/12

- 2012 – RVIA Issues “Standards News Bulletin” SNB-23/12
- SNB-23/12 effectively created an unauthorized parallel standard for measuring for the RV exemption, outside of HUD’s regulatory process.
- RVIA attached A-1-88, and letters from HUD to SNB-23/12
 - Letter from HUD references “add on patios” for purposes of measurement, not additional structures integrated into the unit on the chassis.
 - Additional letter references exclusion of lofts from measurement (ca. 1997).
 - No attached documents reference porches in any way.
- RVIA never notified HUD of SNB-23/12’s publication, nor did RVIA contact HUD to ensure that SNB-23/12 was an accurate explanation of measuring for the HUD-regulated RV exemption. In fact, HUD became aware of SNB-23/12 through its own investigation.
- Manufacturers measuring under SNB-23/12 bulletin certify units as Park Model RVs under RVIA’s non-regulatory ANSI 119.5 standard, as opposed to being labeled as HUD Code units.

9



“Park Model RVs” or HUD Homes?

- Units produced under SNB-23/12 only included “interior space” in measurements per RVIA’s self-published guidelines, not HUD’s Federal Regulations.
- Units included “porches” that could be used as additional living space (as opposed to outdoor recreational space).
- SNB-23/12 blurs the line between permanent housing and temporary park model RVs.
 - HUD’s major concern is that such “Park Models” can be marketed and sold as permanent dwellings without adhering to HUD’s National Construction and Safety Standards.
 - Currently, some Park Model RVs are being marketed as “homes” for multi-season use, indicating their suitability as a residential dwelling.



Examples of “Park Models” purported to be “less than 400 sq. ft.” **under RVIA bulletin**

10



Recent Developments

- October 2014 – OMHP issues advisory memorandum restating its **existing standard** for measuring under the RV exemption.
- OMHP's memorandum effected no regulatory changes. HUD has not modified its regulations regarding the RV exemption since 1982.
- Opponents to the OMHP memorandum have specifically referenced the March 2010 MHCC Conference Call minutes, alleging those minutes confirm that HUD previously allowed porches.
- The March 2010 Consensus Committee Minutes were part of a discussion regarding proposed changes to the exemption, which were rejected by the Manufactured Housing Consensus Committee.
- In those same minutes, then-administrator Matchneer re-affirmed that "HUD did not want to encourage units greater than 400 square feet as they could be used as a dwelling." (MHCC Minutes, March 23, 2010, p. 3)

11



"Porches"

- Restrictions on porches only apply to those built on the same chassis during a unit's construction.
- The measurement of a unit does **not** include aftermarket add-on porches or patios constructed around a unit once that unit is sited.
- HUD's major impetus for including porches that are built on the chassis in the unit's square footage is that those spaces may be readily and easily converted into additional living space, converting a "Park Model RV" into a permanent dwelling. In fact, some PMRVs are being marketed as "tiny homes" designed for year-round use, rather than as seasonal or temporary dwellings as HUD's regulations require.

12



Manufactured Housing Consensus Committee

- **MHCC and the RV Exemption**
 - OMHP is committed to accommodating new changes in the Manufactured Housing Industry, including within the RV exemption.
 - OMHP's memorandum regarding the standard for measuring under the RV exemption has been submitted to the MHCC for discussion and potential modification.
 - Any regulatory change must be considered by the MHCC, in addition to the traditional rulemaking process.
 - OMHP's regulatory process, including the MHCC, is designed to readily adapt standards and regulations to changes in the manufactured housing industry, while ensuring the protection of manufactured housing residents.
 - Industry stakeholders and members of the public are welcome to submitting proposals to the MHCC for consideration, including proposals on the RV exemption.

13



Thank You

14



MANUFACTURED HOUSING CONSENSUS COMMITTEE

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MHCC MEETING
December 2-4, 2014

APPENDIX D: MANUFACTURED HOUSING WORKING GROUP PRESENTATION

By Joseph Hagerman

Manufactured Housing

Working Group Summary



U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

Joseph Hagerman, DOE

MH Working Group Charter

“The purpose of the working group (WG) was to discuss and, if possible, reach consensus on a proposed rule for the energy efficiency of manufactured homes (MH), as authorized by section 413 of the Energy Independence and Security Act of 2007 (EISA).”

- The WG was instructed by ASRAC to complete the term sheet for a proposed rule by September 30, 2014
 - One extension was granted which expired on October 31, 2014.
- The WG convened 6 times over three months to accomplish its goal:
 - Term Sheet, Appendix A: modifications to IECC to address MH, and a list of non-binding recommendations

U.S. DEPARTMENT OF
ENERGY | Energy Efficiency &
Renewable Energy

Impacts of Terms Sheet and WG Recommendation

- Preliminary energy savings estimates resulting from the Term Sheet...
 - Cumulative national energy savings of about 0.7 quads for new manufactured homes shipped over a 30 year period.
 - Assumption include 60,000 manufactured homes are shipped annually and that each home is operated for 30 years.
 - DOE will refine the national energy savings calculation during development of the NOPR.
 - Realizes 20-30% reduction in today's manufactured housing annual energy consumption.
 - Energy savings in a new MH resulting from the Term Sheet would be more cost-effective than simply adhering to the 2015 IECC.
- **Recommendation:** ASRAC accept the term sheet and provide it to the Secretary to use as the basis for a Notice of Proposed Rulemaking to the maximum extent possible consistent with the Agency's legal obligations.

3

Working Group Recommendations: Term Sheet

Section 2: Applicable Aspects of the 2015 IECC

Recommendation	Vote Outcome
The WG reviewed the 2015 International Energy Conservation Code (IECC) for residential buildings for applicability to manufactured housing. The WG identified sections of the 2015 IECC that were not applicable, and modified other sections to make them more applicable to manufactured housing.	Consensus (19-yes; 1-no; 2-abstain): October 24, 2014

Appendix A of the Term Sheet contains a line by line review of the 2015 IECC and makes modifications to address the MH industry.

Considerations:

The WG reviewed the relevant sections of the 2015 IECC. DOE in its notice of proposed rulemaking (NOPR) process will likely need to review all IECC language to ensure no sections were missed – to be all inclusive.

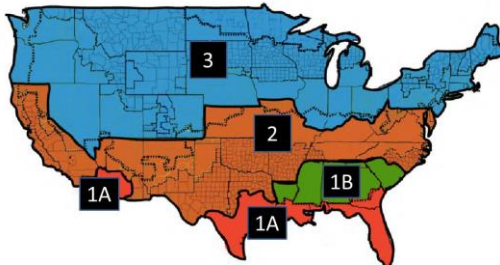
4

Working Group Recommendations: Term Sheet

Section 3: Climate Zones

Recommendation	Vote Outcome
The WG recommends that the energy efficiency standards be based on the four climate zones depicted in Figure 3.1 below. DOE will determine zoning of Alaska, Hawaii, and US Territories when it develops a NOPR.	Consensus (20-yes; 1-no; 1-abstain): October 23, 2014
The WG recommends using the naming convention of zone 1A, 1B, 2, and 3.	Consensus (20-yes; 0-no; 2-abstain): October 24, 2014

Figure 3.1 Climate Zone Map



Considerations:

Depending on the outcome of DOE's SHGC analysis, zones 1A and 1B could have identical requirements. Some WG members expressed that the creation of two zones allow for the potential for different requirements as they felt the regional differentiation could help alleviate issues of affordability.

U.S. DEPARTMENT OF
ENERGY | Energy Efficiency & Renewable Energy

5

Working Group Recommendations: Term Sheet

Section 4: Building Thermal Envelope Pathways to Compliance

Recommendation	Vote Outcome
The WG recommends allowing both a prescriptive path option and a performance path (U_o) option to ensure improved energy efficiency of a manufactured home's building thermal envelope. Both building thermal envelope compliance pathways would also include additional mandatory requirements	Consensus (20-yes; 0-no; 2-abstain): October 2, 2014

Considerations:

The WG voted for 2 paths to provide a straightforward method without calculations (prescriptive) and a more flexible method for housing design that includes a U_o calculation (performance). The U_o method is the current method of compliance for the industry with Housing and Urban Development (HUD).

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6

Working Group Recommendations: Term Sheet

Section 5: Building Thermal Envelope Requirements: Prescriptive Path Option

Recommendation	Vote Outcome
The WG recommends the prescriptive measures associated with the 4 climate zones outlined in Table 5.1 below. These measures would apply to all manufactured homes regardless of size.	Consensus (20-yes; 1-no; 1-abstain): October 23, 2014

Table 5.1 Building Thermal Envelope Prescriptive Requirements

Climate Zone	Ceiling (R-value)	Wall (R-value)	Floor (R-value)	Window (U-value)	Skylight (U-value)	Door (U-value)	Glazed Fenestration (SHGC)
1A	30	13	13	0.35	.75	0.40	0.25
1B	30	13	13	0.35	.75	0.40	Pending DOE Analysis*
2	30	21	19	0.35	.55	0.40	Pending DOE Analysis*
3	38	21	30	0.32	.55	0.40	No Rating

*The WG did not reach consensus on prescriptive specifications for SHGC in climate zones 1B and 2, and has recommended that DOE determine these values after further analysis when it develops a NOPR.

Considerations:

The WG reviewed the life-cycle cost of several packages of requirements, and determined this package to be the most cost-effective. SHGC values are pending DOE analysis of the impact of different window position and building orientation assumptions than used in the base case model.

Working Group Recommendations: Term Sheet

Section 5: Building Thermal Envelope Requirements: Prescriptive Path Option

Recommendation	Vote Outcome
The WG recommends the following footnotes apply to the prescriptive requirements listed in the Table 5.1: - For conversion between units of length: 1 foot = 304.8 mm. - R-values represent minimums; U-values represent maximums. - Skylights with SHGC ≤ 0.30 may be excluded from building thermal envelope glazed fenestration SHGC requirements. - Floor R-values assume R-21 batt + R-14 blanket values to account for compression areas in the floor in climate zone 3. - The wall R-values column assumes a minimum truss heel height of 5.5 inches at the outside face of each exterior wall. - Each R-values column reflects the insulation manufacturers' published values. Uniform insulation thickness would not be mandatory as long as the required volume of insulation is installed with uniform density	Consensus (19-yes; 1-no; 2-abstain): October 24, 2014

Considerations:

Definition of R-values should be reviewed with the Federal Trade Commission (FTC) and its guidelines.

Working Group Recommendations: Term Sheet

Section 5: Building Thermal Envelope Requirements: Prescriptive Path Option

Recommendation	Vote Outcome
The WG recommends DOE complete further analysis to determine U -values for use as an alternative to the R -values listed in Table 5.1. Under this U -values approach, a manufacturer would need to comply with the window, skylight, and door U -values, and the glazed fenestration SHGC specifications included in Table 5.1.	Consensus (20-yes; 1-no; 1-abstain): October 24, 2014

Table 5.2 U -Value Alternative for Ceiling, Wall, and Floor

Climate Zone	Ceiling (U -value)	Wall (U -value)	Floor (U -value)
1A	Pending DOE Analysis*	Pending DOE Analysis*	Pending DOE Analysis*
1B	Pending DOE Analysis*	Pending DOE Analysis*	Pending DOE Analysis*
2	Pending DOE Analysis*	Pending DOE Analysis*	Pending DOE Analysis*
3	Pending DOE Analysis*	Pending DOE Analysis*	Pending DOE Analysis*

*The WG did not reach consensus on the U -values in Table 5.2 and has recommended DOE determine these values after further analysis when it develops a NOPR.

Considerations:

The WG did not have enough time to reach a consensus on these values. Therefore, DOE needs to determine the R -value to U -value conversion for the NOPR, which may be different than the IECC equivalents. The conversion is dependent on manufactured home construction assumptions.

Working Group Recommendations: Term Sheet

Section 6: Building Thermal Envelope Requirements: U_o Performance Path Option

Recommendation	Vote Outcome
The WG recommends the U_o values in Table 6.1. The SHGC requirement shall be met in addition to U_o . An area weighted average SHGC shall satisfy the glazed fenestration SHGC requirements of Table 5.1.	Consensus (19-yes; 1-no; 2-abstain): October 24, 2014
The WG recommends that the calculation of U_o follow the Battelle method. The Battelle method produces an area-weighted average overall U -value for a home based on the thermal qualities and areas of material assemblies used in the home's construction.	Consensus (20-yes; 0-no; 2-abstain): October 24, 2014

Table 6.1 U_o Values for Performance Path

Climate Zone	Single-Section U_o	Multi-Section U_o
1A	0.087	0.084
1B	0.087	0.084
2	0.070	0.068
3	0.059	0.056

Consensus (20-yes; 1-no; 1-abstain): October 23, 2014

Considerations:

More members supported having separate U_o values for different sized homes than one U_o value for all homes. This approach does give a less stringent requirement for single-section homes, which are the typical option for low-income buyers – some members of the WG felt that this approach also helped address affordability.

Working Group Recommendations: Term Sheet

Section 7: Other Mandatory Requirements – Envelope Sealing

Recommendation	Vote Outcome
To provide envelope tightness of 5 air changes per hour (ACH) when depressurized to 50 Pascals (Pa), the WG recommends that all manufactured homes would be required to ensure that: 1) A continuous air barrier is established upon installation of all building thermal envelope (i.e., ceiling, walls, doors, and floor) opaque components 2) Mating line surfaces (i.e., floor, exterior walls, and ceiling) are equipped with a continuous, durable gasket. 3) Gaps and penetrations in the ceilings, floors, and exterior surfaces of walls would be sealed with caulk, foam or gasket, or other suitable material. 4) Rough openings around windows and exterior doors are sealed with caulk or foam.	Consensus (15-yes; 2-no; 5-abstain): September 23, 2014

Considerations:

DOE should conduct testing after the compliance date of standards to assess the effectiveness of these visual inspection requirements. Because of a lack of data/cost on this issue, the WG did not recommend direct testing of envelope sealing.

Working Group Recommendations: Term Sheet

Section 7: Other Mandatory Requirements – Envelope Sealing (continued)

Recommendation	Vote Outcome
To provide envelope tightness of 5 air changes per hour (ACH) when depressurized to 50 Pascals (Pa), the WG recommends that all manufactured homes would be required to ensure that (cont.): 5) Attic access panels and drop-down stairs are equipped with gaskets (i.e., not caulked) to produce a continuous air seal. 6) Duct system register boots that penetrate the building thermal envelope and/or air infiltration barrier are sealed to the air barrier or interior finish materials. 7) Sealing methods between dissimilar materials allow for differential expansion and contraction	Consensus (15-yes; 2-no; 5-abstain): September 23, 2014

Considerations:

DOE should conduct testing after the compliance date of standards to assess the effectiveness of these visual inspection requirements. Because of a lack of data/cost on this issue, The WG did not recommend direct testing of envelope sealing.

Working Group Recommendations: Term Sheet

Section 7: Other Mandatory Requirements – Duct Sealing and Hot Water Pipe Insulation

Recommendation	Vote Outcome
The WG recommends that duct leakage must be no greater than 4 cubic feet per minute (CFM) per 100 square feet of floor area at a 25 Pa test pressure.	Consensus (19-yes; 0-no; 3-abstain): September 22, 2014
The WG recommends that all hot water pipes outside conditioned space would be required to be insulated to at least R-3. In addition, all hot water pipes from a water heater to a distribution manifold would be required to be insulated to at least R-3.	Consensus (17-yes; 0-no; 5-abstain): September 23, 2014

Considerations:

The WG assumed duct leakage testing would be needed for all homes. Industry perceives the recall risk as too great if they ship a non-compliant home.

13

Back-up Slides

- Non-binding Recommendations
- WG membership

14

Non-binding Working Group Recommendations (1)

Other Recommendations Outside the Scope of the Working Group

The WG discussed and made notes on other recommendations, issues, concerns, and opportunities that DOE should consider as it begins to regulate the industry. All these topics are not binding to the terms sheet.

Recommendation
The WG recommends that DOE charter a new working group through ASRAC to develop recommendations regarding certification-testing and enforcement. [DOE SUPPORTS]
The WG recommends that DOE modify the REScheck software application to specifically address manufactured housing. The WG observed that both inputs and calculation assumptions (e.g., the siting orientation of the home) would require modification to account for the factory construction of manufactured homes. The modified application also would provide recommendations for equipment sizing. [DOE SUPPORTS GIVEN FUNDING]
The WG recommends that DOE consider development of a duct sizing tool, potentially based on the Air Conditioning Contractors of America (ACCA) Manual D. [NO COMMENT]

15

Non-binding Working Group Recommendations (2)

Other Recommendations Outside the Scope of the Working Group

Recommendation
The WG has three recommendations involving building thermal envelope sealing: [NO COMMENT] 1) DOE conduct testing to confirm an average ACH of 5 is achieved in practice with the 7 visual inspection envelope sealing requirements listed in section 7. This testing could inform future decisions regarding building thermal envelope sealing. 2) DOE conduct a WUFI analysis to assess potential moisture concerns of the proposed package on exterior walls. This analysis could inform future decisions and regulations regarding building thermal envelope sealing. 3) DOE consider approaches to address a scenario in which an exterior surface of a wall cannot be sealed, such as the case in which the exterior sheathing is also the structural sheathing, and the resulting impact to the recommendations from section 7.
The WG recommends that DOE consider labeling approaches that provide (1) voluntary labeling for whole-house performance information, (2) heating/cooling equipment sizing parameters capable of servicing a home with the highest expected heating and cooling load, and (3) additional information on building components and equipment. [DOE SHOULD REVIEW THIS WITH THE APPROPRIATE PARTIES]
The WG recommends DOE consider an education program on energy efficiency for potential owners of manufactured housing. [NO COMMENT]

16

Non-binding Working Group Recommendations (3)

Other Recommendations Outside the Scope of the Working Group

Recommendation
The WG recommends that DOE consider government supports/grants/subsidies/etc. for energy efficiency, and that DOE consider increasing DOE R&D funding to a level commensurate with the role of manufactured housing in the nation's housing mix. [NO COMMENT]
The WG recommends DOE consider an education program on non-energy benefits for potential owners of manufactured housing including indoor air quality, comfort, and durability. [NO COMMENT]
The WG recommends DOE consider certain revisions to the HUD regulations at Subpart F of 24 CFR Part 3280. DOE should discuss these recommendations with HUD to address duplications and inconsistencies between the current 24 CFR Part 3280 and DOE's eventual NOPR. [NO COMMENT]

Considerations:

DOE will take into consideration these recommendations.

17

Working Group Members

Name	Affiliation	Name	Affiliation
Joseph Hagerman	Department of Energy	Mark Weiss	Manufactured Housing Association for Regulatory Reform
John Caskey	ASRAC, National Electrical Manufacturers Association	Michael Lubliner	Washington State University Extension Energy Program
Bert Kessler	Palm Harbor Homes, Inc.	Michael Wade	Cavalier Home Builders
David Tompos	NTA, Inc.	Peter Schneider	Efficiency Vermont
Emanuel Levy	System Building Research Alliance	Richard Hanger	Housing Technology and Standards
Eric Lacey	Responsible Energy Codes Alliance	Richard Potts	Virginia Department of Housing and Community Development
Ishbel Dickens	National Manufactured Home Owners Association (NMHOA)	Rob Luter	Lippert Components, Inc.
Keith Dennis	National Rural Electric Cooperative Association	Robin Roy	Natural Resources Defense Council
Lois Starkey	Manufactured Housing Institute	Scott Drake	East Kentucky Power Cooperative
Lowell Ungar	American Council for an Energy-Efficient Economy	Stacey Epperson	Next Step Network
Manuel Santana	Cavco Industries	Mark Ezzo	Clayton Homes, Inc.

18



MANUFACTURED HOUSING CONSENSUS COMMITTEE

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MHCC MEETING
December 2-4, 2014

APPENDIX E: THE RULEMAKING PRESENTATION

By Aaron Santa Anna

THE RULEMAKING PROCESS

General
Overview

STEP 1: HUD CLEARANCE

- Requires approval by Assistant Secretary.
- Typical Clearance Period is 14 Business Days.
Does not include resolution of NonConcurrences.
- Key reviewers include all major offices including
OIG.

STEP 2: OMB REVIEW

- Executive Order 12866, “Regulatory Planning and Review” (issued September 30, 1993).
- Section 6 of the Order provides for OMB review of “significant regulatory actions.”
- Some Manufactured Housing Rules are “significant.”
- OMB has 90 calendar days to review a rule.

A RULE IS “SIGNIFICANT” IF IT WILL LIKELY --

- Have an annual effect on the economy of \$100 million or more;
- Materially and adversely affect the economy, productivity, competition, jobs, the environment, public health or safety, or state, local or tribal governments or communities;
- Materially alter the budgetary impact or recipient rights and obligations of a program; or
- Raise novel legal or policy issues.

Consequence of Significance Determination

- For each matter identified as, or determined by the Administrator of OIRA to be, a significant regulatory action, the issuing agency shall provide to OIRA:
- (i) The text of the draft regulatory action, together with a reasonably detailed description of the need for the regulatory action and an explanation of how the regulatory action will meet that need; and
- (ii) An assessment of the potential costs and benefits of the regulatory action, including an explanation of the manner in which the regulatory action is consistent with a statutory mandate...

STEP 3: Signature Package Circulation

- Contains final approved draft of document with cover letter from Assistant Secretary to Secretary
- Secretary gives approval to publish document
- Package flows:
 - From OGC Regulations Division
 - To program counsel
 - To program Assistant Secretary
 - To OGC front office
 - To Executive Secretariat, Deputy Secretary, Secretary

STEP 4: SUBMIT TO HOUSE AND SENATE COMMITTEES

- Authorizing Committees have 15 calendar days to review and provide comments to HUD.
- In practice, Hill comments are rarely submitted.
- Only affects rules for comment (Proposed and Interim).

STEP 5: SUBMIT TO *FEDERAL REGISTER*

- Publication typically occurs 3 to 5 business days after submission.

Proposed Rule Timeline

- *Approximate Average Calendar Days to Publication: 196 (approximately 7 months) with OIRA Review.*
- *Approximate Average Calendar Days to Publication: 85 (approximately 3 months) without OIRA Review.*

STEP 6: PUBLIC COMMENTS

- All members of the public are entitled to participate in rulemaking by submitting comments before the rule takes effect;
- Purpose is to provide information on the impact of the proposed rule, to express support or opposition, and to advocate for changes;
- Agency must consider all comments.

PUBLIC COMMENTS

- All public comments are available on line at www.regulations.gov
- Agency must respond to public comments in preamble of final rule.

Step 7: FINAL RULE

- Upon consideration of public comments and after making any changes, a final rule is drafted and published
- HUD clearance and OMB review
- Final rule is effective after 30 days

Proposed and Final Rule Timeline

- *To Publication:*
 - *Approximate Average Calendar Days: 437 (approximately 15 months) with OIRA Review*
 - *Approximate Average Calendar Days: 215 (approximately 7 months) without OIRA Review.*
- *To Effective Date (+30 days to publication totals):*
 - *Approximate Average Calendar Days: 467 (approximately 16 months) with OIRA Review.*
 - *Approximate Average Calendar Days: 245 (approximately 8 months) without OIRA Review.*

QUESTIONS?



MHCC MEETING
December 2-4, 2014

APPENDIX F: RECENT DEVELOPMENTS IN INCORPORATION BY REFERENCE IN FEDERAL REGULATION PRESENTATION

By Aaron Santa Anna

Recent Developments in Incorporation by Reference in Federal Regulation

Aaron Santa Anna
Assistant General Counsel for Regulations
December 3, 2014

What is Incorporation by Reference (IBR)?

- * Administrative Procedure Act requires agencies to publish mandatory regulations in *Federal Register*. Published regulations are then codified in the Code of Federal Regulations (CFR).
- * Individuals are not required to follow, and may not be adversely affected, by agency's failure to publish requirements in *Federal Register* (unless they have actual and timely notice).

What is Incorporation by Reference (IBR)?

- * Under 5 U.S.C. 552(a)(1), however, material published elsewhere that is *reasonably available* to a the class of persons affected thereby, is “deemed published in *Federal Register*” when incorporated by reference with the approval of the Director of the Federal Register.
- * The legal effect of incorporation by reference is that the material is treated as if it were published in the *Federal Register* and CFR. This material, like any other properly issued rule, has the force and effect of law.

Purpose of Incorporation by Reference

- * Original purpose was to shorten the *Federal Register* and CFR.
 - Avoid repetition of materials available from other Federal government sources. See S. REP. 1219, at 11 (1964).
- * Some materials cannot be printed in the hard copy editions of the *Federal Register* and CFR.
 - Maps, schematics, other technical material, etc.
- * Some materials, including most voluntary consensus standards, are copyrighted.

Example of IBR: MH Construction and Safety Standards



Current IBR Regulations

*The Office of the Federal Register (OFR) has promulgated regulations implementing 5 U.S.C. § 552(a)(1), found at 1 C.F.R. part 51.

*An agency must secure approval to IBR only when it is promulgating a **FINAL RULE** that incorporates by reference. *OFR is not involved at the proposed rule stage.*

*An agency must ensure that a copy of the publication is on file at the Office of the Federal Register and available at agency.

*OFR has 20 days to process requests, and regulations cannot be published without approval. See 1 C.F.R. § 51.3(b), 51.5(a)(1).

Challenge to IBR Regulations: Petition for Rulemaking

- * A Petition for Rulemaking was filed in 2013 requesting that OFR revise its IBR regulations to redefine “reasonably available”. Petitioners raised several issues, including:
 - * OFR address the public access problem at proposed rule stage – incorporating copyrighted standards means that the public must pay to see full text of regulation.
 - * Public inspection of documents at agency offices not sufficient to cure problem.

Challenge to IBR Regulations: Petition for Rulemaking

- * Petitioners requested that agencies be required to demonstrate that IBR materials were available throughout the Proposed Rule’s comment period by:
 - * 1. Posting IBR materials on agency’s website; or
 - * 2. Requiring that IBR material be made readable, free of charge on website of organization developing standards; or
 - * 3. Limiting IBR eligibility only to standards that are available online for free.

Revised OFR Incorporation Rule Effective January 6, 2015

- * OFR issued Final Rule on IBR on November 7, 2014. In this final rule, the OFR determined:
 - * 1. Reasonable availability does not mean free; maintains paper copies and contact information.

Regarding access, OFR stated that there is no one solution but regulated entities and the
 - * 2. Agencies must do more to promote availability of IBR materials at the proposed rule stage.

Revised OFR Incorporation Rule Effective January 6, 2015

- * Requirements for Proposed Rule:
- * The agency does not request formal approval but must:
 - * (1) Discuss, in the preamble of the proposed rule, the ways that the materials it proposes to incorporate by reference are reasonably available to interested parties or how it worked to make those materials reasonably available to interested parties; and
 - * (2) Summarize, in the preamble of the proposed rule, the material it proposes to incorporate by reference.

Revised OFR Incorporation Rule Effective January 6, 2015

- * **Extent of Preamble Discussion:**
 - * Summaries sufficient to allow a party to determine whether they need to examine a standard;
 - * Material must be on file with the Office of the Federal Register and the Agency;
 - * Content must contain contact information.

Revised OFR Incorporation Rule Effective January 6, 2015

- * **Requirements for Final Rule:**
- * **The agency must:**
 - * (1) Request approval to IBR from Director;
 - * (2) Discuss, in the preamble of the final rule, the ways that the materials it incorporates by reference are reasonably available to interested parties and how interested parties can obtain materials; and
 - * (3) Summarize, in the preamble of the final rule, the material it incorporates by reference.

Questions?

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT**24 CFR Part 3280**

[Docket No. FR-5221-F-02]

RIN 2502-A171

Manufactured Home Construction and Safety Standards

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

ACTION: Final rule.

SUMMARY: This final rule amends the Federal Manufactured Home Construction and Safety Standards by adopting certain recommendations made to HUD by the Manufactured Housing Consensus Committee (MHCC), as modified by HUD. The National Manufactured Housing Construction and Safety Standards Act of 1974 (the Act) requires HUD to publish in the **Federal Register** all proposed revised construction and safety standards (Construction and Safety Standards, or Standards) submitted by the MHCC. The MHCC prepared and submitted to HUD its second group of recommendations to improve various aspects of the Construction and Safety Standards. HUD is including a number of revisions in this final rule to reflect recent changes to code standards adopted by private standard-setting organizations and recommended by the MHCC or members of the public. However, HUD has decided at this time not to go forward in this final rule with certain revisions contained in the proposed rule due to pending regulations for improving energy efficiency in manufactured homes currently being prepared by the Department of Energy (DOE). HUD has also decided not to move forward with its proposal to establish maximum formaldehyde emissions standards for particleboard materials used in Manufactured Housing flooring applications so that HUD can consider standards for formaldehyde being established by the Environmental Protection Agency (EPA) under the Toxic Substances Control Act.

DATES: *Effective Date:* June 9, 2014. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of June 9, 2014.

FOR FURTHER INFORMATION CONTACT: Henry S. Czauski, Acting Deputy Administrator, Office of Manufactured Housing Programs, Office of Housing, Department of Housing and Urban Development, 451 7th Street SW., Room 9164, Washington, DC 20410; telephone

number 202-708-6409 (this is not a toll-free number). Persons with hearing or speech impairments may access this number through TTY by calling the toll-free Federal Information Relay Service at 800-877-8339.

SUPPLEMENTARY INFORMATION:**I. Background**

The National Manufactured Housing Construction and Safety Standards Act of 1974 (42 U.S.C. 5401–5426) (the Act) authorizes HUD to establish and amend the Federal Manufactured Home Construction and Safety Standards (the Construction and Safety Standards, or Standards) codified in 24 CFR part 3280. The Act was amended in 2000 by the Manufactured Housing Improvement Act of 2000 (Pub. L. 106–569), by expanding its purposes and creating the Manufactured Housing Consensus Committee (MHCC).

As amended, the purposes of the Act (enumerated at 42 U.S.C. 5401) are: “(1) to protect the quality, durability, safety, and affordability of manufactured homes; (2) to facilitate the availability of affordable manufactured homes and to increase homeownership for all Americans; (3) to provide for the establishment of practical, uniform, and, to the extent possible, performance-based Federal construction standards for manufactured homes; (4) to encourage innovative and cost-effective construction techniques for manufactured homes; (5) to protect residents of manufactured homes with respect to personal injuries and the amount of insurance costs and property damages in manufactured housing consistent with the other purposes of this section; (6) to establish a balanced consensus process for the development, revision, and interpretation of Federal construction and safety standards for manufactured homes and related regulations for the enforcement of such standards; (7) to ensure uniform and effective enforcement of Federal construction and safety standards for manufactured homes; and (8) to ensure that the public interest in, and need for, affordable manufactured housing is duly considered in all determinations relating to the Federal standards and their enforcement.”

In addition, the amended Act generally requires HUD to establish Construction and Safety Standards that are reasonable and practical, meet high standards of protection, are performance-based, and are objectively stated. Congress specifically established the MHCC to develop proposed revisions to the Construction and Safety Standards. The Act provides specific

procedures (42 U.S.C. 5403) for the MHCC process.

The MHCC held its first meeting in August 2002 and began work on reviewing possible revisions to the Construction and Safety Standards. As the MHCC proceeded, proposed revisions to the Construction and Safety Standards were divided into sets. The first set of revisions proposed by the MHCC was published as a final rule in the **Federal Register** on November 30, 2005 (70 FR 72024). This final rule is based in part on the second set of MHCC proposals to revise the Construction and Safety Standards published as a proposed rule in the **Federal Register** on July 13, 2010 (75 FR 39871).

Based upon HUD’s review of this rulemaking, HUD has decided not to include in this final rule certain revisions contained in the proposed rule due to overlapping jurisdiction and potential conflicts with pending regulations for improving energy efficiency in manufactured homes being prepared by DOE under the Energy Independence and Security Act (Pub. L. 110–140, approved December 19, 2007) (EISA). DOE published an Advance Notice of Proposed Rulemaking soliciting information on the design, construction, financing, operating costs, and other areas for relevance to establishing and implementing energy standards for manufactured housing in 2010 (75 FR 7556, February 22, 2010). Given the DOE rulemaking, HUD has decided at this time not to adopt the proposed modifications to §§ 3280.503, 3280.505, 3280.506, 3280.508, 3280.509,¹ 3280.510, 3280.511, 3280.703, 3280.715(a)(4), and 3280.715(a)(6).

HUD has also decided not to include in this final rule proposals to create a separate formaldehyde emissions limit for particleboard flooring materials of 0.2 ppm and adding medium density fiberboard materials (MDF) as a formaldehyde-regulated material with an emissions limit of 0.3 ppm. HUD is taking this action in view of its statutory requirement to develop reduced formaldehyde emission standards for composite wood products used in manufactured homes that reflect the national standards for formaldehyde emissions from those products that is currently being developed by the EPA under the Toxic Substances Control Act as amended by Section 2, Title VI—Formaldehyde Standards For Composite Wood Products.

Finally, in consideration of the public comments and HUD’s experience implementing the program, HUD has

¹ HUD is substituting a table for this section.

also made certain editorial revisions to other sections in the proposed rule. In general, the revisions adopt changes to the codified regulations that reflect code revisions adopted by private standard-setting organizations. HUD declined to adopt some standards in selected instances based on such considerations as cost and public safety. In addition, HUD has decided at this time not to adopt the some code revisions because they have been implemented for only a short period of time and their effect is uncertain.

II. Analysis of Public Comments

The Commenters

The public comment period on the proposed rule closed on September 10, 2010, and five public comments were received. Comments were submitted by a code-making organization, a manufactured housing trade association, two material trade associations, and a member of the public, and covered a wide range of subjects. This section presents the significant issues, questions, and suggestions submitted by public commenters, and HUD's response to these issues, questions, and suggestions.

The commenters were generally supportive of the proposed rule but offered specific recommendations to particular sections of the construction and safety standards. For instance, they supported the proposal's recognition of model codes and other standards and the potential benefit of uniform and effective enforcement of Federal construction and safety standards for manufactured homes. One commenter, for example, stated that the regulation's safety driven requirements will prevent, mitigate, or reduce the number of injuries to people living in HUD-constructed homes and promote honesty among contractors who are inclined to take short cuts that frequently create safety hazards and/or substandard conditions for the people who reside in the homes. Nevertheless, the commenters raised a number of technical cost and safety issues that are discussed in the following section. The following is a summary of the comments received on the proposed rule:

Comment: Requirements for code references for similar building materials should be consistent with the International Residential Code. One commenter noted that it would be preferable for requirements for manufactured housing that are consistent with code references and with requirements for similar materials and building elements regulated by the International Residential Code (IRC), for

consistency of enforcement by various compliance authorities. It was noted that standards contained in the proposed rule for areas such as glazing and water conservation were consistent with the IRC. However, the commenter noted there were inconsistencies between the proposed rule and the IRC, including, for example, alternate test methods in the IRC for determining flame spread ratings of thermal insulating materials.

Response: This recommendation was not accepted by HUD. HUD did not include certain IRC standards since those reference standards were not included in the proposed rule and no technical comparisons or cost data was provided between IRC references and HUD reference standards in support of the recommendation.

Comment: Exit Facilities: Exterior Doors Width. A commenter suggested that IRC Section R311, Means of Egress, requires doors to provide a minimum clear width of 32 inches and a minimum height of 78 inches, which are 4 inches larger for both dimensions than HUD's requirements under § 3280.105. The commenter suggested that the difference may be explained by the interest of minimizing costs. (See § 3280.105.)

Response: HUD did not accept this recommendation, as the issue of exterior passage door width for egress is currently being reviewed by the MHCC. In addition, there are two exterior doors required in manufactured homes for egress by the HUD Standards while only one exterior passage door is required for egress by the IRC.

Comment: Toilet Compartment Width. A commenter noted that while the proposed rule is generally consistent with IRC Section R308, Toilet, Bath and Shower Spaces, the proposed rule permits a minimum dimension of 12 inches from a tub edge, while the IRC requires a minimum of 15 inches from the tub edge. The commenter suggests that cost may be a factor. (See § 3280.111.)

Response: HUD did not accept this proposal to increase the minimum dimension of 12 inches to 15 inches from the toilet to a bathtub edge due to room geometry constraints and the generally smaller room sizes in manufactured homes. In addition, it would be burdensome and costly for the industry to redesign toilet compartment spaces for a practice that has been ergonomically acceptable since the inception of the HUD Standards.

Comment: Adopt the Performance Requirement for Individual Thermostatic Pressure Balancing and Combination Control for Bathing Facilities. A commenter recommended

that HUD update the ASSE 1016 standard, Automatic Compensating Values for Individual Shower and Tub/Shower Combinations, from the 1996 edition to the 2005 edition. (See § 3280.607 Plumbing Fixtures.)

Response: HUD accepted this comment, and the ASSE 1016 standard, 2005 edition, has been included in the final rule. (See § 3280.607 Plumbing Fixtures.)

Comment: Require sprinkler systems in manufactured housing. A commenter recommended that HUD may want to consider whether sprinkler systems should be required in manufactured housing. The commenter stated that retrofitting manufactured housing units with this type of system might be expensive, but despite the incremental cost impact, using sprinklers to extinguish fires rapidly has proven to save lives and dramatically reduce property damages.

Response: HUD declined to adopt the commenter's recommendation, as adoption of standards in this area would be premature. This issue is currently being considered by the MHCC. Recent fire data analysis prepared by the National Fire Protection Association (NFPA) indicated that HUD Standard units have a similar fire safety record to that of one- and two-family dwelling units. In addition, a comparison of code requirements between manufactured homes and one- and two-family homes shows many fire safety provisions for manufactured homes that are not included in model building codes for one- and two-family homes. Further, there is considerable cost impact to install a sprinkler system in a manufactured home for what would appear to be marginal benefits.

Comment: Include anti-scald valves in the standards. Another commenter expressed support for the proposal to include anti-scald valves in the standards to prevent accidental burn injuries to children and others. (See § 3280.607 Plumbing Fixtures.)

Response: HUD adopted the commenter's recommendation and included it in the final rule. (See § 3280.607 Plumbing Fixtures.)

Comment: Revise the Reference Standards for Polyethylene (PEX) tubing and hot and cold water distribution systems. A commenter suggested updates for the new reference standards for polyethylene tubing and hot and cold water distribution systems.

Response: HUD accepted the commenter's recommendations and incorporated these standards in the final rule (See § 3280.604(b)(2)). However, suggestions to add a number of other plumbing reference standards were not

accepted, since they were not included in the proposed rule. There was also no information provided as to the potential impact of including costs and benefits associated with those proposed revisions to the current plumbing requirements.

Comment: Update Glazing and Reference Standards. A commenter recommended further updates to glazing and skylight reference standards contained in the proposed rule. The commenter stated that AAMA/WDMA 100/1.S.7-00. Voluntary Specifications for Skylights is no longer maintained as an industry standard, and had been replaced by the applicable provisions of AAMA/WDMA/CSA 101/1.S.2/A440-08: North American Fenestration Standard Specification for Windows, Doors, and Skylights, which is the appropriate reference standard for the 3280 requirements. (See §§ 3280.403(b)(2), 3280.403(e)(3).)

Response: HUD accepted the commenters' recommendations to upgrade the standards beyond those in the proposed rule as the prior voluntary standard for skylights is no longer available and has been replaced in §§ 3280.403(b)(2) and (e)(3) of the HUD Standards by the AAMA/WDMA/CSA 101/1.S.2/A440-08, North American Fenestration Standard for Windows, Doors, and Skylights.

Comment: Safety Glazing: One commenter noted that glass and glazed openings requirements under the proposed rule are generally consistent with IRC section R308, Glazing. Another commenter suggested updating the requirements for safety glazing to the 2004 standard.

Response: HUD agreed with the commenters and has updated the ANSI Z97.1 reference Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test in the final rule to the 2004 edition (See § 3280.113(c).)

Comment: Allow a microwave to serve as the cabinet protection for fire safety. A commenter supported the proposed revision to allow a microwave to serve as the cabinet protection for fire safety without the current requirement for a metal hood. The commenter stated that such proposed requirement would provide an alternative means of complying with current kitchen cabinet protection requirements and reduce materials and labor costs while providing the necessary fire protection. The commenter recommended that the provision be clarified to specify an "Over-the-range" microwave oven. (See § 3280.204, Kitchen cabinet protection.)

Response: HUD generally agrees with the commenter. HUD, therefore, allows

use of a microwave oven is as an alternative compliance method to protect combustible kitchen cabinets in those situations where the oven is certified to comply with the requirements of Microwave Cooking Appliances in UL 923-2002, is installed between the cabinet and range, and is equivalent in fire protection to the metal range hood otherwise required by this section.

Comment: Requirements for thermal insulating materials. A commenter noted that the requirements for thermal insulating materials in the proposed rule are generally consistent with IRC standard 225-96. The commenter noted that the test method referenced in § 3280.207 is a standard of the NFPA while the two test methods permitted for determining the flames spread index in IRC are 302.10 and ASTM International E 84 or UL 723.

The commenter suggested that HUD consider allowing these two alternate/additional test methods for determining the flames spread index, to permit additional flexibility to manufacturers. The commenter noted that the referenced (NFPA) standard was issued in 1996 and that the ASTM E 84 standard is available in an up-to-date 2010 version. The UL standard was also issued more recently than 1996. The addition of the two alternate test methods would have no incremental cost effect, and may reduce testing costs for manufacturers. (See § 3280.207.)

Response: HUD did not include the additional reference standards for flame spread testing in the final rule that were suggested by the commenter, as there was no technical information provided as to the comparability of the results that would be achieved by use of the alternate testing standards recommended.

Comment: The standards should provide for the sizing of heating equipment to reflect the anticipated location. The commenter explained that the current requirements result, in some instances, in the sizing of equipment indicating the most extreme temperatures rather than the actual heating design temperature. The commenter submitted that the wide variance in temperature creates over-compensation in the design and provision of heating equipment and results in energy inefficiency, as well as in operating economy losses and declines in consumer comfort. (See § 3280.510.)

Response: HUD is not including in this final rule this proposed modification to § 3280.510 in view of the DOE rulemaking for improving

energy efficiency in manufactured homes noted earlier in this preamble.

Comment: HUD should count the window sash toward the opening size requirement for egress. A commenter noted the cost impacts associated with the proposed change to prohibit removal of the window sash for determining the opening size for egress windows, and suggested maintaining the current standard. (See § 3280.404(c)(2).)

Response: HUD declined to adopt the commenter's recommendation to maintain the current standard, which allows the sash to be removed to meet the egress window size. HUD reconsidered the original standard in the proposed rule to permit the sash to be removed to meet the egress window size. HUD believes that safety considerations outweigh the cost impact. Accordingly, HUD adopted a change in the final rule to set the standard window size at a level that includes the sash. The sash cannot be removed to meet the egress window size requirements.

Comment: Adopt the Alternative Language in the proposed rule for Comfort Cooling Certificate and Information. The proposed rule provides language that must be included in the comfort cooling certificate for homes in which a central air-conditioning system is provided by the home manufacturer. It also provides an alternative example certificate that contains language explaining the importance of orientation and exposure to the sun. (See § 3280.511.)

Response: HUD is not including in this final rule this proposed modification to § 3280.511, in view of the DOE rulemaking for improving energy efficiency in manufactured homes as noted earlier in this preamble.

Comment: Materials Update. A commenter stated that the standards for Crosslinked Polyethylene (PEX) tubing in the proposed rule are out of date and considered it important that HUD use the updated standards. The updated standards identified by the commenter were Standard Specification for Crosslinked Polyethylene (PEX) Tubing—ASTM F876 2010, and Standard Specification for Crosslinked Polyethylene (PEX) Hot and Cold Water Distribution Systems ASTM F877 2007.

Response: HUD accepted this comment and updated the ASTM F876 and ASTM F877 standards. (See § 3280.604(b)(2).)

Comment: Plumbing Fixture Standard Update. A commenter suggested that the references to ASSE-1016 1996 may be out of date, and unusable by manufacturers. The commenter

suggested an updated reference. (See § 3280.607.)

Response: HUD accepted this comment, and the ASSE 1016 standard, 2005 edition, has been included in the final rule. (See § 3280.607 Plumbing Fixtures.)

Comment: Eliminate the requirement to attach operating instructions to each appliance. A commenter also suggested that it is unnecessary to continue to require appliance operating instructions to be attached to each appliance if they are also required to be provided in the homeowners' manual. (See § 3280.711 Instructions.)

Response: HUD declines to adopt the recommendation. HUD has found that the instructions attached to the appliance are often discarded after the appliance is initially operated by consumers. Additionally, HUD notes that the requirement to have the instructions also provided in the manual is needed for future appliance maintenance.

Comment: Circulating Systems. A commenter noted that the proposed rule requires Class 1 air ducts fiberglass to be no closer than 3 feet from the furnace bonnet or plenum and requires furnace supply plenums to be constructed of Class 0 air duct (metal), extending at least 3 feet from a heat exchanger along the centerline of the airflow. The commenter stated that this proposed revision is contrary to a number of the instructions provided by furnace manufacturers and is not required by the IRC for single-family site-built housing. (See § 3280.715.)

Response: HUD did not accept this comment, as no technical data was provided by the commenter in support of eliminating this fire safety requirement.

Comment: Modify requirements for placement of electrical distribution panels. A commenter suggested that HUD continue to allow the electrical distribution panel to be located in a clothes closet and be "grandfathered in" for existing designs. (See § 3280.804.)

Response: HUD declined to adopt the commenter's suggestion to grandfather in existing designs, because doing so would conflict with fire safety considerations and requirements in the National Electrical Code. (See § 3280.804(f).) These considerations outweigh any design requirements associated with relocating the electrical panel outside of the closet area.

Comment: Coordination with Appendix E. A commenter discussed IRC Appendix E, which describes the means and scope of inspections of manufactured housing installed on privately owned lots within a

jurisdiction that adopts the Appendix. A commenter stated that because appendices are not mandatory unless adopted by the authority having jurisdiction, there may be issues that HUD may wish to coordinate with the requirements of Appendix E.

Response: HUD declined to adopt the commenter's recommendations because Appendix E deals with siting, which is not a construction standard, and is addressed under another proposed rule.

III. This Final Rule

The final rule will revise certain sections of the Construction and Safety Standards and will also revise the incorporated reference standards, where indicated. Most of the changes will codify existing building practices or conform HUD standards to previously issued HUD interpretive bulletins or existing building codes.

A. Incorporation by Reference

The final rule revises § 3280.4, by allowing the manufacturer to select which reference standard to incorporate into its designs and construction, where two or more reference standards are incorporated by reference for the same application or requirement. The final rule will not require that manufacturers comply with the most restrictive aspects of two or more standards in their designs and construction if more than one reference standard exists. While this change reflects a relaxation of current requirements by providing manufacturers with more flexibility in selecting materials, components, etc., to utilize in their production of homes, it is not a significant change. This is because the areas in which there are duplicate reference standards are very few and, for those that do exist, HUD believes the degree of differences in performance and safety between the reference standards (i.e., the restrictive and less restrictive) are not significant. HUD is also using this final rule to revise § 3280.4, its centralized incorporation by reference section, to conform to updated **Federal Register** drafting guidance.

B. Planning Considerations

The final rule revises § 3280.105(a)(2), by establishing the method to be used when measuring the travel distance from the bedroom door to an exit door, a distance that must not exceed 35 feet. The final rule clarifies and standardizes the current method used by manufacturers to measure the travel distance as the distance from the center of the bedroom door to the center of the exit door.

The final rule also revises the provisions for exit facilities/exit doors in § 3280.105(b), to permit door seals to reduce the minimum required exterior door opening by one inch. This change will not change current construction requirements for exterior passage doors. Rather, it codifies an existing practice that has been previously permitted under Interpretative Bulletin B-1-76.

The final rule also revises and makes editorial revisions to provisions for toilet requirements in § 3280.111, by adding an additional minimum clearance dimension from the centerline of a toilet to any adjacent wall of at least 15 inches. This standard is consistent with both current design practice in manufactured homes and with similar requirements in residential building codes.

The final rule revises § 3280.113, by adding additional requirements regarding where safety glazing materials are to be located and how they are to be tested to determine whether they can be considered safety glazing materials. The rule also makes the existing requirements for location and testing of safety glazing materials consistent with other model building codes and residential construction practices. As a result, the final rule provides that safety glazing materials are any glazing material capable of meeting the requirements of the Consumer Product Safety Commission (CPSC) or the Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test used in ANSI Z97.1-2004.

C. Fire Safety

The final rule adds an alternative means of complying with the kitchen cabinet protection requirements in § 3280.204, by allowing the metal hood, 5/16-inch gypsum board, and 3/8-inch air space required by this section, to be omitted when a microwave oven certified as conforming to Underwriters Laboratories Standard UL 923-2002 is installed between the cabinet and the range. However, since the microwave oven would protect only combustible kitchen cabinet materials over the cooking range, all exposed surfaces along the bottom and sides of the cabinet also need to be protected by at least 5/16-inch gypsum board or the equivalent, in accordance with paragraph (a) of this section.

The final rule adds fire safety and performance requirements for all types of thermal insulating materials under new section § 3280.207, Requirements for Thermal Insulating Materials. The current standards require evaluation of fire performance characteristics only of

foam plastic insulating materials. Because thermal insulation materials used in manufactured homes are the same type of insulation materials and characteristics used in residential building codes, they are expected to also comply with the fire-resistive properties in this final rule.

D. Body and Frame Requirements

The final rule revises § 3280.305(c)(1)(i) by clarifying that the net uplift roof load must not be reduced by the dead load of the roof structure for the purposes of preparing engineering calculations or in performing structural load testing. This change for roof uplift design makes no change to current engineering design practices. Rather, it codifies the current practices permitted under Interpretative Bulletin D-4-76.

The final rule makes editorial revisions and also clarifies existing provisions in § 3280.305(c) that address areas where state or local building codes requirements exceed the provisions for design roof loads and wind loads required by HUD Standards. For consideration of state or local requirements for wind loads, the final rule clarifies that wind mapping data or records will need to indicate that higher design loads are necessary.

As noted earlier in this preamble, HUD has decided not to include in this final rule its proposed modifications to lower the existing requirements for control of formaldehyde emissions for particleboard materials, or to add new requirements to limit formaldehyde emissions from medium-density fiberboard materials in § 3280.308. HUD intends to review the standards for formaldehyde currently being established by EPA under the Toxic Substances Control Act.

E. Testing

The final rule contains a conforming amendment to § 3280.403, for the testing of skylights that is consistent with the revisions to § 3280.305(c)(3)(iv) of the Construction and Safety Standards published in the **Federal Register** on November 30, 2005. The conforming amendment provides for skylights to be certified as complying with the AAMA/WDMA/CSA 101/1.S.2/A440-08, North American Fenestration Voluntary Standard Specification for Windows, Doors, and Skylights.

Section 3280.404(c)(2) of the final rule will now prohibit any window that requires the removal of a sash to meet the egress size provisions of the Manufactured Home Construction and Safety Standards from being classified as an egress window. This change will

enhance egress and occupant safety in the event of an emergency.

F. Subpart F

The final rule revises § 3280.504(c) by allowing the use of liquid-applied vapor retarders, so long as a nationally recognized testing agency has approved its use on the specific substrate to which it is to be applied. This addition codifies the current practice of accepting liquid-applied vapor retarders as an alternative to other conventional vapor retarder materials required by this section.

Section 3280.509(c) is revised by replacing the graph for determining the effective R values of compressed insulation with a table that allows for more precisely determining the effects on R values of nonuniform and uniform insulation compression for batt and blown insulation. This will provide a more accurate method for determining effective R value requirements when insulation is compressed or used in sloping roof cavities and will result in more accurate projections of heat loss and heat gain for manufactured homes than determined by the current graphical method.

As noted earlier in this preamble, HUD has decided not to forward with its proposed modifications to §§ 3280.503, 3280.505, 3280.506, 3280.509, 3280.510, and 3280.511, because of standards for energy efficiency being developed by DOE under the Energy Independence and Security Act.

G. Plumbing Systems

The final rule makes a conforming amendment to § 3280.603(a)(2) on water conservation to limit each water closet to 1.6 gallons of water per flush. Section 3280.607(b)(2)(iii) was previously amended in the final rule published in the **Federal Register** on November 30, 2005, by requiring all water closets to be low-consumption (1.6 gallons per flush) closets. This conforming amendment will conserve water and help assure the continued availability of adequate water supplies, as well as reduce wastewater flows.

The final rule revises § 3280.603(b)(4), by adding a requirement that the installation instructions required by § 3280.306(b)(4) include a statement that any heat tape or pipe heating cable used be listed for use in manufactured homes. The final rule also revises this section with regard to the requirements for the receptacle outlet for connection of the heat tape or pipe heating cable to conform with the amended provisions to § 3280.806(d).

The final rule revises the table in 3280.604(b)(2), by incorporating standards for the installation of cross-

linked polyethylene (PEX) plastic cold and hot water systems. This will permit the use of PEX plastic piping as an alternate piping material to other materials that may currently be used to supply hot and cold water systems.

The final rule revises § 3280.606(a)(2), by allowing a two or three compartment sink, up to three individual sinks or up to three lavatories and be connected to one "P" trap, to be considered as a single fixture for the purposes of drainage and ventilation under certain circumstances. This will allow more fixtures to be connected to one "P" trap than is currently permitted by the Standards and would be consistent with other residential model plumbing codes for similar three-fixture configurations.

The final rule adds a new requirement in § 3280.607(b)(3)(v) for shower, bath, and tub-shower combination valves to be either balanced pressure, thermostatic, or a combination of mixing valves that conforms to the requirements of ASSE 1016-2005, Performance Requirements for Automatic Compensating Valves for Individual Shower and Tub/Shower Combinations. These valves will be required to have handle position stops that are adjustable to a maximum setting of 120 °F to prevent scalding and burn injuries to occupants from very hot water. This change will reduce the number of injuries and deaths resulting from tap water scald burns. Further, the Centers for Disease Control and Prevention (CDC) and other organizations report that a majority of scald burn victims are young children whose injuries may have been prevented by the use of an anti-scald valve.² In addition, this revision is consistent with IRC requirements for single- and two-family dwellings.

The final rule revises § 3280.607(b)(5)(ii) for the standpipe height required for laundry tubs from 30 inches to 42 inches above its trap and will require the standpipe to terminate in an accessible location no lower than the top of the clothes washing machine. This increase in standpipe height is also consistent with the IRC requirements for single- and two-family dwellings and will help prevent backflow and improve operation of clothes washers installed in manufactured homes.

The final rule revises § 3280.610(e), by permitting fixture drains that serve only a single lavatory fixture to be 1¼ inches in diameter. This reduction in drain size for a single lavatory is not

² Centers for Disease Control and Prevention and U.S. Department of Housing and Urban Development. *Healthy Housing Reference Manual*, Atlanta: U.S. Department of Health and Human Services, 2006.

significant and would provide adequate drainage flow and venting for individual lavatory fixtures.

The final rule revises the requirements for anti-siphon trap vent devices in § 3280.611(d), by redefining these devices as mechanical vents (see § 3280.602) and by expanding the requirements to also include gravity-operated mechanical vents (also known as air admittance valves). This will allow manufacturers to use either type of mechanical vent (anti-siphon vent or air admittance valve) for venting of certain plumbing fixtures. In addition, § 3280.611(f) is expanded to permit vent terminals either through wall extensions or into mechanical vent devices.

H. Heating, Cooling, and Fuel Burning Systems

The final rule revises § 3280.705(b) by permitting corrugated stainless steel tubing (CSST) systems to be used in gas piping systems, provided that these systems are installed in accordance with the requirements of ANSI/IAS LC-1-1997, Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing. In addition, a table for sizing CSST systems is being added in § 3280.705(d). Paragraph (h) of this section is also revised by permitting CSST to be run inside walls, floors, partitions, and roofs under specified conditions. CSST piping is currently permitted to be used in all other residential construction as a gas piping system by the model codes and state and local building codes.

Sections 3280.707(a) and (d) and 3280.714(a) revise the energy efficiency and energy conservation requirements for comfort heating systems, water heaters, and cooling appliances so that they comply with the provisions of 10 CFR part 430, Energy Conservation Program for Consumer Products, the current applicable requirements for these appliances. Since the energy efficiency requirements cited in the proposed rule were determined to be no longer applicable to these appliances, they have been replaced by the above-cited requirements in the final rule. In addition, HUD has determined that these energy-efficiency requirements for appliances are not affected by the

energy-efficiency standards being developed by DOE under the Energy Independence and Security Act.

Section 3280.715 is revised by eliminating the use of Class 2 ducts and by deleting their definition from § 3280.703, by requiring manufacturer's instructions to indicate that crossover ducts are not to be in contact with the ground and must be properly supported, and by requiring air supply crossover ducts in all Thermal Zones to have a minimal thermal resistance of R-8, unless installed in a basement. This change, eliminating the use of Class 2 air handling ducts, is consistent with the requirements of the IRC for one- and two-family dwellings, and would improve the fire safety and performance of air handling ducts by requiring the use of Class 0 or 1 ducts, which are more fire resistive than Class 2 ducts. The revision to increase the thermal resistance for crossover ducts will reduce heat loss and improve the energy efficiency of crossover ducts between sections of multisection manufactured homes.

As noted in this preamble, HUD has decided not to forward with its proposed modifications to §§ 3280.715(a)(4) and (a)(6).

I. Electrical Systems

The final rule revises § 3280.803 by requiring that a 1¼ inch maximum continuous raceway is to be used when installing a power supply cord within the wall from the bottom of the distribution panel to the underside of the floor. This change and clarification is consistent with the current requirements of the National Electrical Code (NEC), NFPA 70-2005, which is currently incorporated by reference in the Manufactured Home Construction and Safety Standards. In addition, the requirement for installing service equipment in or on the home is revised in paragraph (k)(3) of this section by referencing the appropriate articles of the NEC, NFPA 70-2005.

Section 3280.804(f) is amended by requiring the distribution panelboard to be located in an accessible location and not located in a bathroom or clothes closet. This revision is consistent with

requirements for acceptable locations for electrical distribution panels in residential model codes and with the NEC.

The final rule amends § 3280.805, by requiring all countertop outlets in the kitchen to be supplied by not less than two of the small appliance branch circuits. However, one or more of the small appliance branch circuits may also supply other receptacle outlets in the kitchen, pantry, dining room, and breakfast room. In addition, the final rule amends § 3280.805(a)(3)(vi) by requiring that bathroom receptacle outlets be supplied by at least one 20 ampere branch circuit. While such circuits can have no other outlets, it is permissible to place the outlet for a heat tape or pipe heating cable on a bathroom circuit, provided that all of the bathroom outlets are on the load side of the ground fault circuit interrupter.

Section 3280.806(d) is revised by not including receptacle outlets in the floor that are 18 inches or more from the wall as part of the required receptacle outlets for the room; by permitting the heat tape or pipe heating cable outlet to be on the bathroom circuit, provided that all bathroom outlets are on the load side of the ground fault circuit interrupter; and by requiring receptacles in any countertop to not be in a face-up position. These changes are consistent with the requirements in residential model codes and the NEC.

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

The following is a list of the standards incorporated by reference by this final rule. Each reference standard is preceded with an indicator to identify the type of change being made. A new reference standard being added is indicated by the designation "N," while a reference standard being updated is indicated by the designation "U." The sections of the Construction and Safety Standards that are being amended by each modification are also shown on the right of each reference standard being added or updated.

N—AAMA/WDMA/CSA 101/ I.S.2/A440-08.		North American Fenestration Standard Specification for Windows, Doors and Skylights.	3280.403(b), 3280.403(e).
U—ANSI Z21.23	1993	Gas Appliance Thermostats	3280.703.
N—ANSI A208.2	2002	Medium Density Fiberboard (MDF) for Interior Applications	3280.304(b).
N—ANSI/IAS LC-1	1997	Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing.	3280.705(b).
U—ANSI Z97.1 2004	2004	Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test.	3280.113(c).
U—APA S 812R	1998	Design and Fabrication of Glued Plywood Lumber Beams Plywood Design Supplement #2.	3280.304(b).
U—APA U 814H	1993	Design and Fabrication of Plywood Sandwiched Panels Plywood Design Supplement #4.	3280.304(b).

U—APA U 813L	1996	Design and Fabrication of Plywood Stressed Skin Panels, Plywood Design Supplement #3.	3280.304(b).
N—APA E30R	2001	Engineered Wood Construction Guide	3280.304(b).
N—ASSE 1016	2005	Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations.	3280.607(b).
U—ASTM C564	1997	Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.	3280.604(b)(2), 3280.611(d).
U—ASTM C920	2002	Standard Specification for Elastomeric Joint Sealants	3280.611(d).
U—ASTM D3953	1997	Standard Specification for Strapping, Flat Steel, and Seals	3280.306(b), 3280.306(g).
U—ASTM D4635	2001	Standard Specification for Polyethylene Films Made from Low-density Polyethylene for General Use and Packaging Applications.	3280.611(d).
N—ASTM F876	2010	Standard Specification for Crosslinked Polyethylene (PEX) Tubing.	3280.604(b)(2).
N—ASTM F877	2007	Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems.	3280.604(b)(2).
U—NFPA 31	2001	Standard for the Installation of Oil Burning Equipment	3280.703, 3280.707(f).
N—NFPA 255	1996	Standard Method of Surface Burning Characteristics of Building Materials.	3280.207(a).
N—NFPA 253	2000	Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Source.	3280.207(c).
U—NIST PS 2-04	2004	Voluntary Product Standard Performance Standard for Wood-Based Structural-Use Panels.	3280.304(b).
N—RADCO DS-010	1991	Decorative Gas Appliances for Installation in Solid Fuel Burning Appliances.	3280.703.
N—UL 923	2002	Microwave Cooking Appliances	3280.204(c).
N—CAN/ULC S102.2-M88	1988	Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous Materials and Assemblies.	3280.207(b).
U—UL 181	2003	Factory Made Air Ducts and Air Connectors	3280.702, 3280.703, 3280.715(a).

K. Accessibility Requirements for Persons With Disabilities

In some situations, manufactured housing units subject to HUD's Manufactured Home Construction and Safety Standards may be provided through a program or activity that receives federal financial assistance from HUD. When this is the case, 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 are applicable, including the requirements at 24 CFR 8.22 that address accessibility in new construction. However, these requirements are not applicable to any individual or buyer that obtains Federal Housing Administration financing when purchasing a manufactured housing unit. When working with a recipient of HUD funds, manufacturers must be prepared to produce manufactured housing units that meet the accessibility standards provided in 24 CFR part 8. There regulations currently incorporate the Uniform Federal Accessibility Standards (UFAS) (see 24 CFR 8.32).

IV. Findings and Certifications

Regulatory Review—Executive Orders 12866 and 13563

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.

This rule is not a “significant regulatory action,” as defined in section 3(f) of the Order, and it was not reviewed by OMB. As the preamble highlights, this rule amends several construction and safety standards under the National Manufactured Housing and Construction and Safety Standards Act of 1974. However, most of the changes codify existing practices or conform HUD standards to existing building codes.

Only two standards included in this rule have an impact on the production cost of manufactured homes: the requirement that shower and bath valves use anti-scald mixing valves, and the increase in minimum insulation levels for cross-under ducts. HUD's review of this final rule determined that

it will impose costs equaling \$4.057 million and create discounted present value of benefits totaling \$6.264 million to \$14.069 million, depending on the discount rate. HUD's analysis, as discussed herein, uses a cohort analysis to examine the benefits and costs generated by these changes as applied to a single year's production of manufactured homes. More specifically, the costs associated with these changes are one-time costs at the time of production, while the benefits from the anti-scald valve and increased insulation accrue throughout the life of the home.

Currently, producers of manufactured housing may use non-pressure balanced mixing valves in bathtubs and showers. The cost of non-pressure balanced mixing value generally totals \$30 per valve. This final rule estimates the per-unit cost to producers to purchase pressure balanced/anti-scald mixing valve to be \$55, or an increase of \$25 per valve. The average number of mixing valves is one per single-section home and two per multisection home. Thus, the cost is \$25 per single-section home and \$50 per multisection home.

The number of annual manufactured home placements since 1999 has decreased considerably. The annual rate of placements in 2009 was estimated at 58,100. Of these, 20,900 were estimated to be single-section homes, 36,000 were estimated to be double-section homes, and 1,200 were estimated to have more

than two sections. Although this trend in annual placements has continued to decrease, this analysis assumes an annual placement of 58,100 manufactured homes. In addition, this analysis assumes that the cost of requiring the use of an anti-scald valve at the point of production of the home is less than installation at some later time. This assumption is based on the fact that replacing a mixing valve with an anti-scald valve at some later date would require the use of a licensed plumber for several hours to make the change and a higher cost to purchase the anti-scald valve(s) due to the volume purchasing power of manufacturers as compared to individual purchasers.

Accordingly, based on this annual placement rate, the total cost of the anti-scald valve requirement is \$522,500 for single-section homes (\$25 per home * 20,900 single-section homes). For multisection homes, the total cost is \$1.86 million (\$50 per home * 37,200 multisection homes). The combined cost totals \$2.383 million. (Note: These cost estimates are conservative, as the annual number of placements since 2010 did not exceed the rate of placements assumed in the analysis.)

The second cost comes from the increase in the minimum insulation levels for cross-under ducts. These ducts are used in multisection homes to carry heat from one section to another. Thus, there is no cost increase for single-section homes. The cost per square foot of insulation for multisection homes would increase from \$1.25 per square foot of R-4 insulated cross-under duct to \$3.50 per square foot of R-8 insulated cross-under duct, or \$2.25 per square foot. On average there are 20 square feet of insulation needed per multisection home. Thus, the total cost of increasing the minimum insulation level is \$1.674 million (\$2.25 per square foot * 20 square feet per home * 37,200 homes). (Note: These cost estimates are conservative, as the annual number of placements since 2010 did not exceed the rate of placements assumed in the analysis.)

In estimating the benefits of these two requirements, HUD has considered that requiring anti-scald valves would reduce the number of injuries and deaths resulting from tap water scald burns. Although statistics specific to scald burns in manufactured homes are unavailable, according to Safe Kids, a nonprofit organization dedicated to

preventing accidental childhood injury, hot tap water accounts for nearly 25 percent of all scald burns among children and is associated with more deaths and hospitalizations than any other hot liquid burns. Statistics reported by the CDC indicate that almost 3,000 people are hospitalized annually due to scald burns from tap water in the home.³ The Safe Kids organization, however, reports that in 2002, 22,600 children received emergency room treatments for scald burns,⁴ approximately 25 percent (5,560) coming from hot tap water. This analysis uses the CDC estimate of 3,000, which is a conservative estimate that represents the lower bound of scald injuries prevented.

The Safe Kids organization estimates that hospital costs for admitted scald burn patients average \$22,700.⁵ Although this estimate includes only children under the age of 14, this group comprises a large percentage of scald burn injuries. Finally, based on the number of occupied housing units in the 2007 American Housing Survey (AHS),⁶ newly placed manufactured housing accounts for 0.05% of occupied housing units. If tap water scalds are evenly distributed across all housing units,⁷ then 1.5 burns (3,000 total scald burns * 0.05% in newly placed manufactured housing) could be prevented annually for annual savings of \$35,744 (3,000 burn victims * 0.05% in manufactured homes * \$22,700 in hospital costs).⁸ OMB Circular A-94, which provides guidance on economic analyses required under Executive Order 12866, requires the present discounted value of annual benefits

using alternative discount rates 3 percent and 7 percent. The discounted present value of savings from the use of anti-scald valves totals \$1.227 million using the 3 percent rate and \$0.546 million using the 7 percent rate. Note that using the Safe Kids estimate of 5,560 would increase these amounts to almost 3 scald burns and \$66,246 in hospital care avoided annually. The discounted present value of savings assuming the higher estimate of burns totals \$2.274 million using the 3 percent discount rate and \$1.013 million using the 7 percent discount rate.

In addition to prevented injuries and hospitalizations, the anti-scald valve requirement will also reduce the number of deaths resulting from scald burns. Aside from the 3,000 to 5,560 scald burns occurring each year, the National Coalition to Prevent Childhood Injury estimates that 100 deaths result from scald burns annually. As explained above, newly placed manufactured housing represents 0.05 percent of occupied housing units. Thus, if tap water scalds are evenly distributed across all housing units, then 0.05 burns annually, or one death every 20 years, would be prevented. U.S. Federal Government estimates of the value of a human life range from \$5 million used by the Consumer Product Safety Commission to \$7.22 million used by the EPA. Using the lower estimate of \$5 million, the discounted present value of prevented deaths from the use of anti-scald valves totals \$9.010 million using the 3 percent rate and \$4.012 million using the 7 percent rate.

The insulation requirement will increase the energy efficiency of manufactured homes, which will decrease annual energy costs for homeowners. Based on estimates from the DOE's Energy Gauge model, owners of multisection homes, to which this requirement applies, would save approximately \$3 in energy costs annually. Thus, the total annual benefits of this provision is \$111,600 (\$3 per home * 37,200 homes). Calculating the present value of the stream of benefits into the future yields a discounted present value of \$3.832 million in energy savings using the 3 percent discount rate and \$1.706 million using the 7 percent discount rate.

A summary of HUD's calculation of benefits from the anti-scald valve and insulation requirements follows:

³ Centers for Disease Control and Prevention and U.S. Department of Housing and Urban Development. *Healthy Housing Reference Manual*. Atlanta: U.S. Department of Health and Human Services, 2006.

⁴ Safe Kids Web site: http://www.usa.safekids.org/tier3_cd.cfm?folder_id=540&content_item_id=1011.

⁵ National SAFE KIDS Campaign (NSKC). Burn Injury Fact Sheet. Washington (DC): NSKC, 2004.

⁶ See 2007 AHS, Table 2-1.

⁷ If state and local codes that regulate traditional "stick-built" housing predominantly require anti-scald valves, then this distribution may not be even across housing types. For this reason, manufactured homes may account for a larger than proportionate share of scald burns.

⁸ Anti-scald valves decrease the maximum water temperature to 120 degrees. At this temperature, it would take 8 minutes of exposure to receive second-degree burns and 10 minutes for third-degree burns. While this does not completely eliminate the risk of scald burns, this risk does not need to be completely eliminated for benefits to be realized.

**BENEFITS OF FINAL RULE
BENEFITS OF ANTI-SCALD VALVE REQUIREMENT**

Value of Injuries Prevented	
Annual hospitalizations due to scald burns from tap water	3,000
New manufactured housing share of total occupied housing units	0.05%
Average Cost of Scald Burn Victim	22,700
Annual Value of Benefits	\$35,744
Discounted Present Value (3% Discount Rate)	\$1,227,178
Discounted Present Value (7% Discount Rate)	\$546,358

Value of Deaths Prevented	
Annual deaths due to scald burns from tap water	100
New manufactured housing share of total occupied housing units	0.05%
Value of life	5,000,000
Value of Benefits	\$262,438
Discounted Present Value (3% Discount Rate)	\$9,010,323
Discounted Present Value (7% Discount Rate)	\$4,011,532

Benefits of Insulation Requirement			
	Single	Multi	Total
Number of Homes	20,900	37,200	58,100
Annual Savings per Home	0.00	3.00	
Annual Value of Benefits	\$0	\$111,600	\$111,600
Discounted Present Value (3% Discount Rate)			\$3,831,566
Discounted Present Value (7% Discount Rate)			\$1,705,872

Discounted Present Value of Benefits of Rule		
	Discount rate	
	3%	7%
Anti-Scald Valve Requirement	\$10,237,502	\$4,557,890
Injuries Prevented	1,227,178	546,358
Deaths Prevented	9,010,323	4,011,532
Insulation Requirement	3,831,566	1,705,872
Discounted Present Value of Benefits	\$14,069,068	\$6,263,762

Sources:

¹ American Burn Association.² American Housing Survey (AHS), U.S. Department of Housing and Urban Development.³ National Safe Kids Campaign.

In summary, this final rule will impose costs equaling \$4.057 million and create discounted present value of benefits totaling \$6.264 million to \$14.069 million, depending on the discount rate. Thus, the total impact of this rule, the sum of the total costs and benefits, equals between \$10.321 million and \$18.126 million annually. (Note: These cost estimates are conservative, as the annual number of placements since 2010 did not exceed the rate of placements assumed in the analysis.)

The docket file is available for public inspection in the Regulations Division, Office of General Counsel, Department of Housing and Urban Development, 451 7th Street SW., Washington, DC 20410-0500. Due to security measures

at the HUD Headquarters building, an advance appointment to review the public comments must be scheduled by calling the Regulations Division at 202-402-3055 (this is not a toll-free number). Individuals with speech or hearing impairments may access this number through TTY by calling the Federal Information Relay Service at 800-877-8339.

Paperwork Reduction Act

The modified information collection requirements contained in this final rule, at §§ 3280.510, 3280.511, 3280.804, and 3280.813, have been submitted to the Office of Management and Budget (OMB) for review under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501-3520). In accordance with the

Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information, unless the collection displays a currently valid OMB 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.

The public reporting burden for this modified collection of information is estimated to include the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. These modifications to the existing two labels would result in

no additional burden hours for completing the information collection currently accepted under control number 2502–0253.

Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 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 to this final rule and is available for public inspection between the hours of 8 a.m. and 5 p.m. weekdays in the Regulations Division, Office of General Counsel, Department of Housing and Urban Development, 451 7th Street SW., Room 10276, Washington, DC 20410–0500. Due to security measures at the HUD Headquarters building, please schedule an appointment to review the finding by calling the Regulations Division at 202–402–3055 (this is not a toll-free number). Individuals with speech or hearing impairments may access this number through TTY by calling the Federal Information Relay Service at 800–877–8339.

Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et seq.*) generally 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 would not have a significant economic impact on a substantial number of small entities. This rule regulates establishments primarily engaged in making manufactured homes (NAICS 32991). The Small Business Administration's size standards define an establishment primarily engaged in making manufactured homes as small if it does not exceed 500 employees. Of the 222 firms included under this NAICS definition, 198 are small manufacturers that fall below the small business threshold of 500 employees. The final rule will apply to all of the

manufacturers. The rule would thus affect a substantial number of small entities, but would not have a significant economic impact on these small entities.

Based on an analysis of the costs and the fact that a small manufacturer would just as likely produce homes at the higher end of the cost spectrum as would a major producer, evaluating the effect of the increase is not discernible based on the size of the manufacturing operation. For the reasons stated below, HUD knows of no instance of a manufacturer with fewer than 500 employees that would be economically affected significantly by this rule. As the preamble discusses, the overwhelming majority of the revisions to the Construction and Safety Standards proposed by this rule are directed to relieving burden on all manufacturers by having the Standards be consistent with current design and construction standards or state and local codes. Reducing the differences between the Federal standards for design and construction of manufactured homes with current industry standards reduces burden for all manufacturers.

As discussed under the “Regulatory Planning and Review” section of this preamble, the annual economic impact of this rule is not significant, since the changes made by this rule are largely changes conforming to current industry practices and current building codes. This assessment shows that this does not represent a significant economic effect on either an industry-wide or per-unit basis.

The relatively small increase in cost for the manufacturer associated with this proposed rule would not impose a significant burden on a small business for manufacturing homes that can cost the purchaser between \$40,000 and \$100,000. Therefore, although this rule would affect a substantial number of small entities, it would not have a significant economic impact on them. Therefore, the undersigned certifies that this rule will not have a significant impact on a substantial number of small entities.

Executive Order 13132, Federalism

Executive Order 13132 (entitled “Federalism”) prohibits an agency from publishing any rule that has federalism implications if the rule either: (i) Imposes substantial direct compliance costs on state and local governments and is not required by statute, or (2) preempts state law, unless the agency meets the consultation and funding requirements of section 6 of the Order. This final rule does not have federalism implications, within the meaning of the

Executive Orders, and would not impose substantial direct compliance costs on state and local governments nor preempt state law within the meaning of the Order.

V. Incorporation by Reference

These incorporated standards are approved by the Director of the Federal Register for incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of these standards may be obtained from the organization that developed the standard. As described in § 3280.4, these standards are also available for inspection at HUD's Office of Regulatory Affairs and Manufactured Housing and the National Archives and Records Administration (NARA). This final rule incorporates standards developed by the following organizations:

AAMA—American Architectural Manufacturers Association, 1827 Walden Office Square, Suite 550, Schaumburg, IL 60173, telephone number 847–303–5664, fax number 847–303–5774, Web site: <http://www.aamanet.org>.

ANSI—American National Standards Institute, 25 West 43rd Street, 4th floor, New York, NY 10018, telephone number 212–642–4900, fax number 212–398–0023, Web site: <http://www.ansi.org>.

APA—The Engineered Wood Association, 7011 South 19th Street Tacoma, WA 98411, telephone number 253–565–6600, fax number 253–565–7265, Web site: <http://www.apawood.org>.

ASSE—American Society of Sanitary Engineering, 901 Canterbury, Suite A, Westlake, OH 44145, telephone number 440–835–3040, fax number 440–835–3488, Web site: <http://www.asse-plumbing.org>.

ASTM—American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428, telephone number 610–832–9500, fax number 610–832–9555, Web site: <http://www.astm.org>.

CSA (IAS)—CSA International (formerly International Approval Services), 850 East Pleasant Valley Road, Independence, OH 44131, telephone number 216–524–4990, fax number 216–642–3463, Web site: <http://www.csa-international.org>.

NFPA—National Fire Protection Association, Batterymarch Park, Quincy, MA 02269, telephone number 617–770–3000, fax number 617–770–0700, Web site: <http://www.nfpa.org>.

PS—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 number 301–975–4000, fax number 301–975–4715, Web site: <http://www.nist.gov>.

RADCO—Resources, Applications, Designs, & Controls, Inc., 3220 East 59th Street Long Beach, CA 90805, telephone number 562–272–7231, fax number 562–529–7513, Web site: <http://www.astm.org>.

UL—Underwriters Laboratories, 333 Pfingsten Road, Northbrook, IL 60062, telephone number 847-272-8800, fax number 847-509-6257, Web site: <http://www.ul.com>.

WDMA—Window & Door Manufacturers Association (WDMA), (previously known as the National Wood Window and Door Association, (NWWDA)), 2025 M Street NW., Suite 800, Washington, DC 20036-3309, telephone number, 202-367-1157, Web site: <https://www.wdma.com>.

List of Subjects in 24 CFR Part 3280

Housing standards, Incorporation by reference, Manufactured homes.

Catalog of Federal Domestic Assistance

The Catalog of Federal Domestic Assistance number for Manufactured Housing Construction and Safety Standards is 14.171.

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

PART 3280—MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS

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

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

■ 2. Revise § 3280.4 to read as follows:

§ 3280.4 Incorporation by reference.

(a) The specifications, standards, and codes of the following organizations are incorporated by reference in 24 CFR part 3280 (this Standard) pursuant to 5 U.S.C. 552(a) and 1 CFR part 51 as though set forth in full. The incorporation by reference of these standards has been approved by the Director of the Federal Register. Incorporated standards have the same force and effect as this Standard (24 CFR part 3280), except that whenever reference standards and this Standard are inconsistent, the requirements of this Standard prevail to the extent of the inconsistency. The Department will enforce the listed editions of material incorporated by this section. Where two or more incorporated standards are equivalent in application, the manufacturer may use either standard. If a later edition is to be enforced, the Department will publish a notice of change in the **Federal Register**. These incorporated standards are available for purchase from the organization that developed the standard at the corresponding addresses noted below. Incorporated standards are available for inspection at the Office of Manufactured Housing Program, Manufactured Housing and Construction Standards Division, U.S. Department of Housing

and Urban Development, 451 Seventh Street SW., Room B-133, Washington, DC 20410. Copies of incorporated standards that are not available from their producer organizations may be obtained from the Office of Manufactured Housing Programs. These standards are also available for inspection at the National Archives and Records Administration (NARA). For more information on the availability of this material at NARA, call 202-741-6030 or go to <http://www.archives.gov/federal-register>.

(b) Air Conditioning & Refrigeration Institute (ARI), 4100 North Fairfax Drive, Suite 200, Arlington, VA 22203, telephone number 703-524-8800, fax number 703-528-3816, Web site: <http://www.lightindustries.com/ARI/>.

(1) ANSI/ARI Standard 210/240-89, Unitary Air-Conditioning and Air-Source Heat Pump Equipment, IBR approved for §§ 3280.511(b), 3280.703, and 3280.714(a),

(2) [Reserved].

(c) Aluminum Association (AA), 1525 Wilson Blvd., Suite 600, Arlington, VA 22209; telephone number 703-358-2960, fax number 703-358-3921; Web site: <http://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 Architectural Manufacturers Association (AAMA), 1827 Walden Office Square, Suite 550, Schaumburg, IL 60173, telephone number 847-303-5664, fax number 847-303-5774, Web site: <http://www.aamanet.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 1701.2-95, Voluntary Standard Primary Window and Sliding Glass Door for Utilization in Manufactured Housing, IBR approved for §§ 3280.403(e) and 3280.404(b).

(4) AAMA 1702.2-95, Voluntary Standard Swinging Exterior Passage Door for Utilization in Manufactured Housing, IBR approved for § 3280.405(b) and (e).

(5) AAMA Standard 1704-1985, Voluntary Standard Egress Window Systems for Utilization in Manufactured

Housing, IBR approved for § 3280.404(b).

(6) AAMA/WDMA/CSA/101/I.S.2/A440-08 North American Fenestration Standard/Specification for Windows, Doors and Skylights, January 2008, IBR approved for § 3280.403(b) and (e).

(7) ANSI/AAMA/NWWDA 101/I.S.2-97, Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors, IBR approved for § 3280.304(b).

(e) American Forest and Paper Association (AFPA), 1111 Nineteenth Street, Suite 800, Washington, DC 20036 (previously named National Forest Products Association (NFPA)), telephone number 1-800-878-8878, Web site: <http://www.afandpa.org>.

(1) AFPA, Design Values for Joists and Rafters 1992, IBR approved for § 3280.304(b).

(2) AFPA PS-20-70, Span Tables for Joists and Rafters, 1993, IBR approved for § 3280.304(b).

(3) ANSI/AFPA NDS-2001, National Design Specifications for Wood Construction, 2001 Edition, with Supplement, Design Values for Wood Construction, November 30, 2001, IBR approved for § 3280.304(b).

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

(f) American Gas Association (AGA), 400 North Capitol Street NW., Washington, DC 20001, telephone number 202-824-7000, Web site: <http://www.aga.org/Pages/default.aspx>.

(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.

(2) [Reserved].

(g) American Hardboard Association (AHA), 1210 West NW Highway, Palatine, IL 60067, Web site: <http://hardboard.org>.

(1) ANSI/AHA A135.4-1995, Basic Hardboard, IBR approved for § 3280.304(b).

(2) ANSI/AHA A135.5-1995, Prefinished Hardboard Paneling, IBR approved for § 3280.304(b).

(3) ANSI/AHA A135.6-1998, Hardboard Siding, IBR approved for § 3280.304(b).

(h) American Institute of Steel Construction (AISC), One East Wacker Drive, Chicago, IL 60601, telephone number 312-670-2400, fax number 312-670-5403, Web site: <http://www.aisc.org/>.

(1) AISC-S335, 1989. Specification for Structural Steel Buildings—Allowable Stress Design and Plastic Design (except for the following parts of this standard

which are not incorporated by reference: 1.3.3, 1.3.4, 1.3.5, 1.3.6, 1.4.6, 1.5.1.5, 1.5.5, 1.6, 1.7, 1.8, 1.9, 1.10.4 through 1.10.7, 1.10.9, 1.11, 1.13, 1.14.5, 1.17.7 through 1.17.9, 1.19.1, 1.19.3, 1.20, 1.21, 1.23.7, 1.24, 1.25.1 through 1.25.5, 1.26.4, 2.3, 2.4, 2.8 through 2.10), June 1, 1989, IBR approved for §§ 3280.304(b) and 3280.305(j).

(2) [Reserved].

(i) American Iron and Steel Institute (AISI), 25 Massachusetts Ave., NW., Suite 800, Washington, DC 20001, telephone number 202-452-7100, Web site: <http://www.steel.org>.

(1) AISI, Specification for the Design of Cold-Formed Steel Structural Members, 1996, IBR approved for §§ 3280.304(b) and 3280.305(j).

(2) [Reserved].

(j) American National Standards Institute (ANSI), 25 West 43rd Street, 4th floor, New York, NY 10018, telephone number 212-642-4900, fax number 212-398-0023, Web site: <http://www.ansi.org>.

(1) ANSI A112.14.1-1975, Backflow Valves, IBR approved for § 3280.604(b).

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

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

(4) ANSI A208.1-1999, Particleboard, IBR approved for § 3280.304(b).

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

(6) ANSI B16.18-1984, Cast Copper Alloy Solder-Joint Pressure Fittings, IBR approved for § 3280.604(b).

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

(8) ANSI/IAS LC 1-1997, Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST), approved October 28, 1996, IBR approved for § 3280.705(b).

(9) ANSI Z21.1-2000, Household Cooking Gas Appliances, IBR approved for § 3280.703.

(10) ANSI Z21.5.1-1999, Gas Clothes Dryers Volume 1, Type 1 Clothes Dryers, with Addendum Z21.5.1a-1999, IBR approved for § 3280.703.

(11) 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, IBR approved for §§ 3280.703 and 3280.707(d).

(12) ANSI Z21.15-1997, Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose

End Valves, IBR approved for §§ 3280.703 and 3280.705(c).

(13) ANSI Z21.19-1990, with Addendum ANSI Z21.19a-1992 and Z21.19b-1995, Refrigerators Using Gas Fuel, IBR approved for § 3280.703.

(14) ANSI Z21.20 with Addendum Z21.20a-2000, Automatic Gas Ignition Systems and Components, IBR approved for § 3280.703.

(15) ANSI Z21.21-2000, Automatic Valves for Gas Appliances, IBR approved for § 3280.703.

(16) ANSI Z21.22-1999, Relief Valves for Hot Water Supply Systems, IBR approved for §§ 3280.604(b) and 3280.703.

(17) ANSI Z21.23-1993, Gas Appliance Thermostats, approved August 10, 1993, IBR approved for § 3280.703.

(18) ANSI Z21.24-1997/CGA 6.10-M97, Connectors for Gas Appliances, IBR approved for § 3280.703.

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

(20) ANSI Z21.47-1990 with Addendum Z21.47a-1990 and Z21.47b-1992, Gas-Fired Central Furnaces (Except Direct Vent System Central Furnaces), IBR approved for § 3280.703.

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

(22) ANSI Z97.1-2004, Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test, copyright 2004, IBR approved for §§ 3280.113(c), 3280.304(b), 3280.403(d)(1), 3280.604(b), and 3280.607(b).

(23) ANSI Z124.1-1987, Plastic Bathtub Units with Addendum Z124.1a-1990 and Z124.1b-1991, IBR approved for § 3280.604(b).

(24) ANSI Z124.2-1987, Plastic Shower Receptors and Shower Stalls with Addendum Z124.2a-1990, IBR approved for § 3280.604(b).

(25) ANSI Z124.3-1986, Plastic Lavatories with Addendum Z124.3a-1990, IBR approved for § 3280.604(b).

(26) ANSI Z124.4-1986, Plastic Water Closets, Bowls, and Tanks with Addenda Z124.4a-1990, IBR approved for § 3280.604(b).

(27) ANSI Z124.5-1997, Plastic Toilet (Water Closets) Seats, IBR approved for § 3280.604(b).

(28) ANSI Z124.7-1997, Prefabricated Plastic Spa Shells, IBR approved for § 3280.604(b).

(29) ANSI Z124.9-1994, Plastic Urinal Fixtures, IBR approved for § 3280.604(b).

(k) The Engineered Wood Association (APA) (formerly the American Plywood Association), 7011 South 19th Street, Tacoma, WA 98411, telephone number 253-565-6600, fax number 253-565-7265, Web site: <http://www.apawood.org>.

(1) APA D410A-2004, Panel Design Specification, 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 E30R, Engineered Wood Construction Guide, revised January 2001, IBR approved for § 3280.304(b).

(4) APA H815E-1995 (PDS Supplement #5), Design and Fabrication of All-Plywood Beams, IBR approved for § 3280.304(b).

(5) APA S 811M-1990 (PDS Supplement 1), Design and Fabrication of Plywood Curved Panels, IBR approved for § 3280.304(b).

(6) APA S 812R, Design and Fabrication of Glued Plywood-Lumber Beams, revised November 1998, Supplement #2, July 1992 IBR approved for § 3280.304.

(7) APA U 813L, Design and Fabrication of Plywood Stressed-Skin Panels, revised April 1996, Supplement # 3, August 1992, IBR approved for § 3280.304(b).

(8) APA U 814H, Design and Fabrication of Plywood, Sandwiched Panels, revised September 1993, Supplement #4, March 1990, IBR approved for § 3280.304(b).

(l) American Society of Civil Engineers (ASCE), 1801 Alexander Bell Drive, Reston, VA 20191, telephone number 800-548-2723, Web site: <http://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), and 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) and 3280.305(j).

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

(m) American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), 1791 Tullie Circle NE., Atlanta, GA 30329, telephone number 404-636-8400, fax number 404-321-5478, Web site: <https://www.ashrae.org/home/>.

(1) 1997 ASHRAE Handbook of Fundamentals, Inch-Pound Edition (1997), 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). IBR approved for §§ 3280.508(a), 3280.508(e), and 3280.511(a).

(2) [Reserved].

(n) ASME (formally the American Society of Mechanical Engineers), Two Park Avenue, New York, NY 10016–5990, telephone number 800–843–2763, Web site: <http://www.asme.org/>.

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

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

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

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

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

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

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

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

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

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

(11) ANSI/ASME A112.19.4(M)–1984, Porcelain Enameled Formed Steel Plumbing Fixtures, IBR approved for § 3280.604(b).

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

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

(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(b).

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

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

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

(18) ANSI/ASME B1.20.1–1983, Pipe Threads, General Purpose (Inch), IBR approved for §§ 3280.604(b), 3280.703, 3280.705(e), and 3280.706(d).

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

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

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

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

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

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

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

(26) ANSI/ASME B36.10–1979, Welding and Seamless Wrought Steel Pipe, IBR approved for §§ 3280.604(b), 3280.703, 3280.705(b), and 3280.706(b).

(o) American Society of Sanitary Engineering (ASSE), 901 Canterbury, Suite A, Westlake, OH 44145, phone number 440–835–3040, fax number 440–835–3488, Web site: <http://www.asse-plumbing.org>.

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

(2) ASSE 1002 Revision 5–1986 (ANSI/ASSE–1979), Performance Requirements for Water Closet Flush Tank Fill Valves (Ballcocks), IBR approved for § 3280.604(b).

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

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

(5) ASSE 1008–1986, Performance Requirements for Household Food

Waste Disposer Units, IBR approved for § 3280.604(b).

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

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

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

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

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

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

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

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

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

(p) American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428, (610) 832–9500, fax number 610–832–9555, Web site: <http://www.astm.org>.

(1) ASTM A53–93, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless, IBR approved for §§ 3280.604(b) and 3280.703.

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

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

(4) ASTM B42–93, Standard Specification for Seamless Copper Pipe,

Standard Sizes, IBR approved for §§ 3280.604 and 3280.703.

(5) ASTM B43–91, Standard Specification for Seamless Red Brass Pipe, Standard Sizes, IBR approved for §§ 3280.604(b) and 3280.705(b).

(6) ASTM B88–93, Standard Specification for Seamless Copper Water Tube, IBR approved for §§ 3280.604, 3280.703, 3280.705(b), and 3280.706(b).

(7) ASTM B251–93, Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube, IBR approved for §§ 3280.604 and 3280.703.

(8) ASTM B280–95a, Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service, IBR approved for §§ 3280.703, 3280.705(b), and 3280.706(b).

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

(10) ASTM C 36/C 36M–99, Standard Specification for Gypsum Wallboard, 1999, IBR approved for § 3280.304.

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

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

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

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

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

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

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

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

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

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

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

(22) ASTM D4442–92 (Reapproved 1997), Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials, IBR approved for § 3280.304(b).

(23) ASTM D4444–92, Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters, IBR approved for § 3280.304(b).

(24) 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).

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

(26) ASTM E 96–95 Standard Test Methods for Water Vapor Transmission of Materials, IBR approved for § 3280.504(a).

(27) ASTM E 162–94, Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source, IBR approved for § 3280.203(a).

(28) ASTM E 773–97, Standard Test Methods for Accelerated Weathering of Sealed Insulating Glass Units, IBR approved for § 3280.403(d).

(29) ASTM E 774–97, Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units, IBR approved for § 3280.403(d).

(30) ASTM E 1333–96, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber, approved March 10, 1996, IBR approved for § 3280.406(b).

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

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

(33) 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(b).

(q) Cast Iron Soil Pipe Institute (CISPI), 1064 Delaware Avenue SE, Atlanta, GA 30316, telephone number 404–622–0073, fax number 404–973–2845, Web site: <http://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(b).

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

(r) 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(b).

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

(s) HPVA (previously HPMA)—Hardwood Plywood and Veneer Association (HPVA) (previously named Hardwood Plywood Manufacturers Association (HPMA), 1825 Michael Faraday Drive, Reston, VA 22090, telephone number 703–435–2900, fax number 703–435–2537, Web site: <http://www.hpva.org/>.

(1) ANSI/HPVA HP–1–1994 (Approved 1995), American National Standard for Hardwood and Decorative Plywood, 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) HUD User, 11491 Sunset Hills Road, Reston, VA 20190–5254.

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

(2) [Reserved].

(u) IIT Research Institute (IITRI), 10 West 35th Street, Chicago, IL 60616, telephone number 312–567–4000, Web site: <http://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].

(v) International Association of Plumbing and Mechanical Officials

(IAPMO), 4755 East Philadelphia Street, Ontario, CA 91716, telephone number 909-472-4100, fax number 909-472-4150, Web site: <http://www.iapmo.org>.

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

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

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

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

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

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

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

(8) IAPMO TSC 9-97, Standard for Gas Supply Connectors for Manufactured Homes, IBR approved for § 3280.703.

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

(w) Military Specifications and Standards, Naval Publications and Forms Center (MIL), 5801 Tabor Avenue, Philadelphia, PA 19120.

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

(2) [Reserved].

(x) National Electrical Manufacturers Association (NEMA), 1300 North 17th Street, Suite 1752, Arlington, VA 22209, telephone number 703-841-3200, fax number 703-841-5900, Web site: <http://www.nema.org/Pages/default.aspx>.

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

(2) [Reserved].

(y) International Code Council Evaluation Service (NER), (previously known as National Evaluation Service), 5360 Workman Mill Road, Whittier, CA 90601-0543, telephone number 1-800-423-6587, ext. 66546, fax number 562-695-4694, Web site: <http://www.icc-es.org>.

(1) NER-272, National Evaluation Report, Power Driven Staples, Nails, and Allied Fasteners for Use in All Types of Building Construction,

Reissued September 1, 1997, IBR approved for § 3280.304(b).

(2) [Reserved].

(z) National Fenestration Rating Council (NFRC), 6305 Ivy Lane, Suite 140, Greenbelt, MD 20770, telephone number 301-589-1776, fax number 301-589-3884, Web site: <http://www.nfrc.org>.

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

(2) [Reserved].

(aa) National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269, phone number 617-770-3000, fax number 617-770-0700, Web site: <http://www.nfpa.org>.

(1) NFPA 31, Standard for the Installation of Oil Burning Equipment, 2001, IBR approved for §§ 3280.703 and 3280.707(f).

(2) NFPA 54-2002, National Fuel Gas Code, IBR approved for § 3280.703.

(3) NFPA 58, Liquefied Petroleum Gas Code, 2001 Edition, IBR approved for §§ 3280.703 and 3280.704(b).

(4) NFPA No. 70-2005, National Electrical Code, IBR approved as follows:

(i) Article 110.22, IBR approved for §§ 3280.803(k) and 3280.804(k).

(ii) Article 210.12(A) and (B), IBR approved for § 3280.801(b).

(iii) Article 220.61, IBR approved for § 3280.811(b).

(iv) Article 230, IBR approved for §§ 3280.803(k) and 3280.804(k).

(v) Article 250.24, IBR approved for §§ 3280.803(k) and 3280.804(k).

(vi) Article 250.26, IBR approved for §§ 3280.803(k) and 3280.804(k).

(vii) Article 250.28, IBR approved for §§ 3280.803(k) and 3280.804(k).

(viii) Article 312.2(A), IBR approved for §§ 3280.803(k) and 3280.804(k).

(x) Table 314.16(A), IBR approved for §§ 3280.808(m) and 3280.808(q).

(ix) Article 314.23(B), IBR approved for §§ 3280.808(m) and 3280.808(q).

(xi) Article 406.3, IBR approved for § 3280.807(d).

(xii) Article 410.4(D), IBR approved for § 3280.805(a).

(xiii) Article 440, IBR approved for § 3280.805(a).

(xiv) Article 440.65, IBR approved for § 3280.801(b).

(xv) Part II of Article 550, IBR approved for §§ 3280.801(a) and 3280.801(b).

(xvi) Article 550.25(a), IBR approved for § 3280.801(b).

(xvii) Article 680.70, IBR approved for §§ 3280.607(c) and 3280.801(a).

(xviii) Article 680.71, IBR approved for §§ 3280.607(c) and 3280.801(a).

(xix) Articles 680.72, IBR approved for §§ 3280.607(c) and 3280.801(a).

(5) NFPA 90B, Warm Air Heating and Air Conditioning Systems, 1996 Edition, IBR approved for § 3280.703.

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

(7) 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).

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

(bb) 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 number 301-975-4000, fax number 301-975-4715, Web site: <http://www.nist.gov>.

(1) PS 1-95, Construction and Industrial Plywood (With Typical APA Trademarks), IBR approved for § 3280.304(b).

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

(cc) National Sanitation Foundation (NSF), 789 North Dixboro Road, Ann Arbor, MI 48105, telephone number 734-769-8010, fax number 734-769-0109, Web site: <http://www.nsf.org>.

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

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

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

(dd) Resources, Applications, Designs, & Controls (RADCO), 3220 East 59th Street, Long Beach, CA 90805, telephone number 562-272-7231, fax number 562-529-7513, Web site: <http://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.

(2) [Reserved].

(ee) Society of Automotive Engineers (SAE), 400 Commonwealth Drive, Warrendale, PA 15096, telephone number 724-776-0790, Web site: <http://www.sae.org/>.

(1) SAE-J533b-1992, Flares for Tubing, IBR approved for §§ 3280.703 and 3280.705(f).

(2) [Reserved].

(ff) Steel Joist Institute (SJI), 234 West Cheves Street, Florence, SC 29501, telephone number 843-407-4091, Web site: <http://steeljoist.org>.

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

(2) [Reserved].

(gg) Truss Plate Institute (TPI), 218 North Lee Street, Suite 312, Alexandria, VA 22314, telephone number 703-683-1010, fax number 866-501-4012, Web site: <http://www.tpinst.org/index.html>.

(1) TPI-85, Design Specifications for Metal Plate and Wood Connected Trusses, IBR approved for § 3280.304(b).

(2) [Reserved].

(hh) Underwriters' Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062, telephone number 847-272-8800, fax number 847-509-6257, Web site: <http://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 103-1995, with 1999 revisions, Factory-Built Chimneys for Residential Type and Building Heating Appliances, Ninth Edition, IBR approved for § 3280.703.

(3) UL 109-1997, with 2001 revisions, Tube Fittings for Flammable and Combustible Fluids, Refrigeration Service, and Marine Use, Sixth Edition, IBR approved for § 3280.703.

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

(5) UL 174-1996, with 1997 revisions, Household Electric Storage Tank Water Heaters, Tenth Edition, IBR approved for § 3280.703.

(6) UL 181 Factory-Made Air Ducts and Air Connectors, Ninth Edition, April 4, 1996, with revisions through May 15, 2003, IBR approved for §§ 3280.702, 3280.703 and 3280.715(a).

(7) UL 181A, 1994, with 1998 revisions, Standard for Safety Closure Systems for use with Rigid Air Ducts and Air Connectors, Second Edition, IBR approved for §§ 3280.703 and 3280.715(c).

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

(9) UL 217, Single and Multiple Station Smoke Alarms, Fifth Edition, dated January 4, 1999, IBR approved for § 3280.208(a).

(10) UL 268, Smoke Detectors for Fire Protective Signaling Systems, Fourth Edition, dated January 4, 1999, IBR approved for § 3280.208(a).

(11) UL 307A-1995, Liquid Fuel-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles, Seventh Edition, with 1997 revisions, IBR approved for §§ 3280.703 and 3280.707(f).

(12) UL 307B-1995, Gas Burning Heating Appliances for Manufactured Homes and Recreational Vehicles, Fourth Edition, with 1998 revisions, IBR approved for § 3280.703.

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

(14) UL 441, 1996 with 1999 revisions, Gas Vents, Ninth Edition, IBR approved for § 3280.703.

(15) UL 569, 1995 with 2001 revisions, Pigtailed and Flexible Hose Connectors for LP-Gas, Seventh Edition, IBR approved for §§ 3280.703 and 3280.705(k).

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

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

(18) UL 1042-1994, Electric Baseboard Heating Equipment, Fourth Edition, with 1998 revisions, IBR approved for § 3280.703.

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

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

(21) UL 1995, 1995, Heating and Cooling Equipment, Second Edition, with 1999 revisions, IBR approved for § 3280.703.

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

(ii) Underwriters' Laboratories of Canada (ULC), 7 Underwriters Road, Toronto, Ontario, Canada M1 R 3A9, telephone number 866-937-3852, fax number 416-757-8727, Web site: <http://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].

(jj) Window and Door Manufacturers Association (WDMA) (Previously

known as the National Wood Window and Door Association, (NWWDA)), 2025 M Street, NW., Suite 800, Washington, DC 20036-3309, telephone number 202-367-1157, Web site: <https://www.wdma.com>.

(1) NWWDA I.S.4-81, Water Repellent Preservative Non-Pressure Treatment for Millwork, IBR approved for § 3280.405(b).

(2) [Reserved].

■ 3. In § 3280.105, revise paragraphs (a)(2)(iv) and (b)(2) to read as follows:

§ 3280.105 Exit facilities; exterior doors.

(a) * * *

(2) * * *

(iv) One of the required exit doors must be accessible from the doorway of each bedroom without traveling more than 35 feet. The travel distance to the exit door must be measured on the floor or other walking surface along the center-line of the natural and unobstructed path of travel starting at the center of the bedroom door, curving around any corners or permanent obstructions with a one-foot clearance from, and ending at, the center of the exit door.

(b) * * *

(2) All exterior swinging doors must provide a minimum 28-inch wide × 74-inch high clear opening. Door seals are permitted to reduce the opening, either vertically or horizontally, a maximum of one inch. All exterior sliding glass doors must provide a minimum 28-inch wide × 72-inch high clear opening.

* * * * *

■ 4. Revise § 3280.111 to read as follows:

§ 3280.111 Toilet compartments.

Each toilet compartment must have a minimum width of 30 inches, with a minimum clear space of 21 inches in front of each toilet. A toilet located adjacent to a wall must have the center-line of the toilet located a minimum of 15 inches from the wall. A toilet located adjacent to a tub must have the center-line of the toilet located a minimum of 12 inches from the outside edge of the tub.

■ 5. Amend § 3280.113 by revising paragraph (b) and adding paragraphs (c) and (d) to read as follows:

§ 3280.113 Glass and glazed openings.

* * * * *

(b) *Hazardous locations requiring safety glazing.* Except as provided in paragraph (d) of this section, the following locations and areas require the use of safety glazing conforming to the requirements of paragraph (c) of this section:

- (1) Glazing in all entrance or exit doors;
 - (2) Glazing in fixed and sliding panels of sliding glass doors;
 - (3) Glazing in storm-type doors;
 - (4) Glazing in unframed side-hinged swinging doors;
 - (5) Glazing in doors and fixed panels less than 60 inches above the room floor level that enclose bathtubs, showers, hydromassage tubs, hot tubs, whirlpools, saunas;
 - (6) Glazing within 12 inches horizontally, as measured from the edge of the door in the closed position, and 60 inches vertically as measured from the room floor level, adjacent to and in the same plane of a door;
 - (7) Glazing within 36 inches of an interior room walking surface when the glazing meets all of the following:
 - (i) Individual glazed panels exceed 9 square feet in area in an exposed surface area;
 - (ii) The bottom edge of the exposed glazing is less than 19 inches above the room floor level; and
 - (iii) The top edge of the exposed glazing is greater than 36 inches above the room floor level.
 - (8) Glazing in rails and guardrails; and
 - (9) Glazing in unbacked mirrored wardrobe doors (i.e., mirrors that are not secured to a backing that is capable of being the door itself).
- (c) Safety glazing material is considered to be any glazing material capable of meeting the requirements of Consumer Product Safety Commission 16 CFR part 1201, or Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test, ANSI Z97.1–2004 (incorporated by reference, see § 3280.4).
- (d) Glazing in the following locations is not required to meet the requirements in paragraph (b) of this section:
- (1) Openings in doors through which a 3-inch sphere is unable to pass;
 - (2) Leaded and decorative glazed panels;
 - (3) Glazing in jalousie-type doors;
 - (4) Glazing as described in paragraph (b)(6) of this section when an intervening wall or other permanent barrier exists between the door and the glazing;
 - (5) Glazing as described in paragraph (b)(7) of this section when a protective bar or member is installed horizontally between 34 inches and 38 inches above the room floor level, as long as the bar or member is a minimum of 1½ inches in height and capable of resisting a horizontal load of 50 pounds per lineal foot; and
 - (6) Mirrors mounted on a flush door surface or solid wall surface.

- 6. In § 3280.204, revise paragraph (c) to read as follows:

§ 3280.204 Kitchen cabinet protection.

* * * * *

(c) *Alternative compliance.* When all exposed surfaces along the bottoms and sides of combustible kitchen cabinets are protected as described in paragraph (a) of this section, the metal hood, the 5/16-inch thick gypsum board or equivalent material, and the 3/8-inch airspace required by paragraph (a) of this section can be omitted, provided that:

- (1) A microwave oven is installed between the cabinet and the range; and
- (2) The microwave oven is equivalent in fire protection to the metal range hood required by paragraph (a) of this section; and
- (3) The microwave oven is certified to be in conformance with Microwave Cooking Appliances, UL 923–2002 (incorporated by reference, see § 3280.4).

* * * * *

§§ 3280.207 through 3280.209 [Redesignated as §§ 3280.208 through 3280.210]

- 7. Redesignate §§ 3280.207 through 3280.209 as §§ 3280.208 through 3280.210, respectively.

- 8. Add a new § 3280.207 to read as follows:

§ 3280.207 Requirements for thermal insulating materials.

(a) *General.* Except for foam plastic materials and as provided in this section, exposed and concealed thermal insulating materials, including any facings, must be tested in accordance with NFPA 255–96, Standard Method of Test of Surface Burning Characteristics of Building Materials (incorporated by reference, see § 3280.4) and must have a flame spread index of 25 or less and a smoke developed index of 450 or less. The flame spread and smoke developed limitations do not apply to:

- (1) Coverings and facings of insulation batts or blankets installed in concealed spaces when the facings are in substantial contact with the unexposed surface of wall, floor, or ceiling finish; or
- (2) Cellulose loose-fill insulation that complies with paragraph (b) of this section.

(b) *Loose-fill insulation.* (1) Cellulose loose-fill insulation that is not spray-applied or self-supporting must comply with, and each package must be labeled in accordance with the Consumer Product Safety Commission requirements in 16 CFR parts 1209 and 1404.

(2) Other loose-fill insulation that cannot be mounted in the NFPA 255–96, test apparatus without a screen or other artificial support must be tested in accordance with CAN/ULC S102.2–M88, Standard Method of Test for Surface Burning Characteristics of Floor Coverings and Miscellaneous Materials and Assemblies (incorporated by reference, see § 3280.4), and must have a flame spread index of 25 or less and a smoke developed index of 450 or less.

(c) *Attic locations.* Exposed insulation installed on the floor or ceiling forming the lower boundary of the attic must be tested in accordance with NFPA 253–2000, Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source (incorporated by reference, see § 3280.4) and must have a critical radiant flux of not less than 0.12 watt/cm².

- 9. Revise § 3280.301 to read as follows:

§ 3280.301 Scope.

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

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

- 10. Amend § 3280.304(b)(1) as follows:

■ a. In the list under the undesignated heading “Wood and Wood Products,” revise the references to “Design and Fabrication of Glued Plywood-Lumber Beams,” “Design and Fabrication of Plywood Sandwich Panels,” “Design and Fabrication of Plywood Stressed Skin Panels,” and “Wood Structural Design Data;”

■ b. In the list under the undesignated heading “Wood and Wood Products,” remove the reference to “Voluntary Product Standards, Performance Standard for Wood-Based Structural Use Panels,” and add in its place a reference to “Performance Standards for Wood-Based Structural Use Panels;”

■ c. In the list under the undesignated heading “Wood and Wood Products,” add new reference standards for “Engineered Wood Construction Guide” and for “Medium Density Fiberboard (MDF),” immediately preceding the undesignated heading “Other;” and

■ d. In the list under the undesignated heading “Unclassified,” remove the

reference to “Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Buildings—ANSI/Z-97.1–1984,” and add in its place a reference to “Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test, ANSI Z97.1–2004 (incorporated by reference, see § 3280.4).”

The revisions and additions to read as follows:

§ 3280.304 Materials.

* * * * *

(b)(1) * * *

Wood and Wood Products

* * * * *

Design and Fabrication of Glued Plywood-Lumber Beams, Supplement # 2—APA S 812R, 1992 (incorporated by reference, see § 3280.4).

* * * * *

Design and Fabrication of Plywood Sandwich Panels, Supplement #4—APA U 814H, 1990 (incorporated by reference, see § 3280.4).

Performance Standard for Wood-Based Structural Use Panels—NIST PS 2–04, 2004 (incorporated by reference, see § 3280.4).

Design and Fabrication of Plywood Stressed-Skin Panels, Supplement 3—APA-U 813L, 1992 (incorporated by reference, see § 3280.4).

* * * * *

Wood Structural Design Data, 1986 Edition with 1992 Revisions, AFPA.

* * * * *

Engineered Wood Construction Guide—APA E30R 2001 (incorporated by reference, see § 3280.4).

Medium Density Fiberboard (MDF) For Interior Applications—ANSI A208.2–2002 (incorporated by reference, see § 3280.4).

* * * * *

Unclassified

* * * * *

Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test, ANSI Z97.1–2004 (incorporated by reference, see § 3280.4).

* * * * *

■ 11. In § 3280.305, revise paragraphs (c)(1)(i), (c)(2)(iv), and (c)(3)(ii) to read as follows:

§ 3280.305 Structural design requirements.

* * * * *

(c) * * *

(1) * * *

(i) *Standard wind loads (Zone I).*

When a manufactured home is not designed to resist the wind loads for

high-wind areas (Zone II or Zone III) specified in paragraph (c)(1)(ii) of this section, the manufactured home and each of its wind-resisting parts and portions must be designed for horizontal wind loads of not less than 15 psf and a net uplift roof load of not less than 9 psf. The net uplift roof load must not be reduced by the dead load of the roof structure for the purposes of engineering design or structural load testing.

* * * * *

(2) * * *

(iv) *Consideration of local requirements.* For areas where wind mapping data or records or the requirements of the State or local authority indicate wind speeds in excess of those identified in this section, the Department may establish, through rulemaking, more stringent requirements for manufactured homes to be installed in such areas.

(3) * * *

(ii) *Consideration of local requirements.* For exposures in areas (mountainous or other) where recognized snow records, wind records, or the requirements of the State or local authority indicate significant differences from the loads stated in this paragraph (c)(3), the Department may establish, through rulemaking, more stringent requirements for manufactured homes to be installed in such areas. For snow loads, such requirements must be based on a roof snow load of 0.6 of the ground snow load for areas exposed to wind and a roof snow load of 0.8 of the ground snow load for sheltered areas.

* * * * *

■ 12. In § 3280.306, revise paragraphs (b)(2)(v) and (g)(2) to read as follows:

§ 3280.306 Windstorm protection.

* * * * *

(b) * * *

(2) * * *

(v) That anchoring equipment should be certified by a registered professional engineer or architect to resist these specified forces in accordance with testing procedures in ASTM D3953–97, Standard Specification for Strapping, Flat Steel and Seals (incorporated by reference, see § 3280.4).

* * * * *

(g) * * *

(2) Type 1, Finish B, Grade 1 steel strapping, 1¼ inches wide and 0.035 inches in thickness, certified by a registered professional engineer or architect as conforming with ASTM D3953–97, Standard Specification for Strapping, Flat Steel and Seals (incorporated by reference, see § 3280.4).

■ 13. In § 3280.403, revise the section heading and paragraph (a), redesignate

paragraph (b) as (b)(1), add paragraph (b)(2), revise paragraphs (c) and (d)(1), and add paragraph (e)(3) to read as follows:

§ 3280.403 Requirements for windows, sliding glass doors, and skylights.

(a) *Scope.* This section establishes the requirements for prime windows and sliding glass doors, except that windows used in an entry door are components of the door and are excluded from these requirements.

(b) * * *

(2) All skylights must comply with AAMA/WDMA/CSA/101/I.S.2/A440–08: North American Fenestration Standard/Specifications for Windows, Doors and Skylights (incorporated by reference, see § 3280.4). Skylights must withstand the roof loads for the applicable Roof Load Zone specified in § 3280.305(c)(3), and the following wind loads:

(i) For Wind Zone I, the wind loads specified in § 3280.305(c)(1)(i); and

(ii) For Wind Zones II and III, the wind loads specified for exterior roof coverings, sheathing, and fastenings in § 3280.305(c)(1)(ii).

(c) *Installation.* All primary windows, sliding glass doors, and skylights must be installed in a manner that allows proper operation and provides protection against the elements, as required by § 3280.307.

(d) * * *

(1) Safety glazing materials, where used shall meet Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test, ANSI Z97.1–2004 (incorporated by reference, see § 3280.4).

* * * * *

(e) * * *

(3) All skylights installed in manufactured homes must be certified as complying with AAMA/WDMA/CSA 101/I.S.2/A440–08: North American Fenestration Standard/Specifications for Windows, Doors, and Skylights (incorporated by reference, see § 3280.4). This certification must be based on applicable loads specified in paragraph (b) of this section.

* * * * *

■ 14. In § 3280.404, revise paragraph (c)(2) and add paragraph (c)(3) to read as follows:

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

* * * * *

(c) * * *

(2) An operational check of each installed egress window or device must be made at the manufactured home

factory. All egress windows and devices must be capable of being opened to the minimum required dimensions by normal operation of the window without binding or requiring the use of tools. Any window or device failing this check must be repaired or replaced. A repaired window must conform to its certification. Any repaired or replaced window or device must pass the operational check.

(3) Windows that require the removal of the sash to meet egress size requirements are prohibited.

* * * * *

■ 15. Amend § 3280.504 as follows:

■ a. Add “(incorporated by reference, see § 3280.4)” immediately following “Materials)” in paragraph (a)(1).

■ b. Redesignate paragraph (c) as paragraph (d) and add new paragraph (c).

The addition reads as follows:

§ 3280.504 Condensation control and installation of vapor retarders.

* * * * *

(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 E 96–95, Standard Test Methods for Water Vapor Transmission of Materials, and associated application rate for each specific substrate.

* * * * *

■ 16. In § 3280.509, revise paragraph (c) to read as follows:

(c) *Insulation compression.* Insulation compressed to less than nominal thickness and loose-fill insulation in sloping cavities must have its nominal *R*-values reduced in compressed areas in accordance with the following table:

TABLE TO PARAGRAPH (C)—EFFECT OF INSULATION COMPRESSION AND RESTRICTION ON *R*-VALUES

Original thickness (%)	Non-uniform (a) restriction		Uniform (b) compression batt (%)
	Batt (%)	Blown (%)	
0	20	15	0
1	26	21	1
2	32	25	2
3	36	28	4
4	38	30	5
5	41	32	7
6	43	33	8
7	45	35	10
8	46	36	11
9	48	38	13
10	49	39	14
11	51	40	15

TABLE TO PARAGRAPH (C)—EFFECT OF INSULATION COMPRESSION AND RESTRICTION ON *R*-VALUES—Continued

Original thickness (%)	Non-uniform (a) restriction		Uniform (b) compression batt (%)
	Batt (%)	Blown (%)	
12	52	42	17
13	53	43	18
14	54	44	20
15	55	45	21
16	57	46	22
17	58	47	24
18	59	48	25
19	59	49	26
20	60	50	28
21	61	51	29
22	62	52	30
23	63	52	31
24	64	53	33
25	65	54	34
26	65	55	35
27	66	56	36
28	67	57	37
29	68	57	39
30	68	58	40
31	69	59	41
32	70	60	42
33	70	60	43
34	71	61	44
35	72	62	45
36	72	63	47
37	73	63	48
38	74	64	49
39	74	65	50
40	75	65	51
41	75	66	52
42	76	67	53
43	76	68	54
44	77	68	55
45	78	69	56
46	78	70	57
47	79	70	58
48	79	71	59
49	80	71	60
50	80	72	61
51	81	73	62
52	81	73	63
53	82	74	64
54	82	75	65
55	83	75	66
56	83	76	67
57	84	76	68
58	84	77	69
59	84	78	70
60	85	78	71
61	85	79	72
62	86	79	73
63	86	80	74
64	87	81	75
65	87	81	76
66	88	82	77
67	88	82	78
68	88	83	79
69	89	84	80
70	89	84	81
71	90	85	82
72	90	85	83
73	90	86	84
74	91	86	85
75	91	87	86
76	92	87	87

TABLE TO PARAGRAPH (C)—EFFECT OF INSULATION COMPRESSION AND RESTRICTION ON *R*-VALUES—Continued

Original thickness (%)	Non-uniform (a) restriction		Uniform (b) compression batt (%)
	Batt (%)	Blown (%)	
77	92	88	84
78	92	89	85
79	93	89	85
80	93	90	86
81	93	90	87
82	94	91	88
83	94	91	88
84	95	92	89
85	95	92	90
86	95	93	91
87	96	93	91
88	96	94	92
89	96	94	93
90	97	95	93
91	97	95	94
92	97	96	95
93	98	96	95
94	98	97	96
95	98	97	97
96	99	98	97
97	99	98	98
98	99	99	99
99	100	99	99
100	100	100	100

Note: To use this table, first compute the restricted insulation thickness as a fraction of the uncompressed (full) insulation thickness. Then look up the *R*-value remaining from the appropriate column (Non-uniform Restriction, Batt Non-uniform Restriction, Blown or Uniform Compression, Batt). Example: Assume a section of loose-fill ceiling insulation went from *R*-25 insulation at a height of 10 inches to a minimum height of 2 inches at the edge of the ceiling. The ratio of minimum to full thickness is 0.20 (2 divided by 10). Look up 0.20 (20 percent), read across to column 3 (Non-uniform Restriction, Blown), and read 50 percent. Therefore, the *R*-value of the loose-fill insulation over the restricted area would be *R*-12.5 (50 percent of 25).

(a) Non-uniform restriction is that which occurs between non-parallel planes, such as in the ceiling near the eaves.

(b) Uniform compression is compression between parallel planes, such as that which occurs in a wall.

* * * * *

■ 17. In § 3280.602, remove the

definition for *Anti-siphon trap vent*

device and add a definition for

Mechanical trap vent device in

alphabetical order, to read as follows:

§ 3280.602 Definitions.

* * * * *

Mechanical trap vent device means a device that automatically opens to admit air to a fixture drain above the connection of the trap arm so as to prevent siphonage, and closes tightly when the pressure within the drainage system is equal to or greater than atmospheric pressure, so as to prevent

the escape of gases from the drainage system into the manufactured home.

* * * * *

■ 18. In § 3280.603, revise paragraphs (a)(2), (b)(4)(ii), and (b)(4)(iii) to read as follows:

§ 3280.603 General requirements.

(a) * * *

(2) *Conservation.* Each water closet must not use more than 1.6 gallons of water per flush.

* * * * *

(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 for use with manufactured homes.

(iii) A receptacle outlet complying with § 3280.806(d)(10).

* * * * *

■ 19. Amend § 3280.604(b)(2) as follows:

■ a. In the list under the undesignated heading “Plastic Pipe and Fittings”, add reference standards for “Standard Specification for Crosslinked Polyethylene (PEX) Tubing” and “Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems,” immediately before the undesignated heading “Miscellaneous”;

■ b. In the list under the undesignated heading “Miscellaneous”, revise the reference standard for “Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings” and “Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems”;

■ c. In the undesignated heading “Plumbing Fixtures”, revise the reference standard for “Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Buildings”;

■ d. In the undesignated heading “Plumbing Fixtures”, add a reference standard for “Performance Requirements for Automatic Compensating Values for Individual Shower and Tub/Shower Combinations” at the end of the list.

The revisions and additions to read as follows:

§ 3280.604 Materials.

* * * * *

(b) * * *

(2) * * *

Plastic Pipe and Fittings

* * * * *

Standard Specification for Crosslinked Polyethylene (PEX)

Tubing—ASTM F876–10 (incorporated by reference, see § 3280.4).

Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems—ASTM F877–07 (incorporated by reference, see § 3280.4).

Miscellaneous

* * * * *

Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings, ASTM C564–97 (incorporated by reference, see § 3280.4).

* * * * *

Relief Valves for Hot Water Supply Systems, ANSI Z21.22–1999 (incorporated by reference, see § 3280.4).

* * * * *

Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test, ANSI Z97.1–2004 (incorporated by reference, see § 3280.4).

* * * * *

Plumbing Fixtures

* * * * *

Performance Requirements for Automatic Compensating Values for Individual Shower and Tub/Shower Combinations, approved January 2005 ASSE 1016–2005 (incorporated by reference, see § 3280.4).

■ 20. Amend § 3280.605 as follows:

■ a. Redesignate paragraphs (a)(1) through (7) as paragraphs (b) through (h);

■ b. Redesignate paragraphs (i) and (ii) of newly redesignated paragraph (h) as paragraphs (h)(1) and (2); and

■ c. Revise newly redesignated paragraph (h)(1) to read as follows:

§ 3280.605 Joints and connections.

* * * * *

(h) * * *

(1) Approved or listed hub-less pipe and fittings must be permitted to be joined with listed couplings or adapters, per the manufacturer’s recommendations.

* * * * *

■ 21. In § 3280.606, revise paragraph (a)(2) to read as follows:

§ 3280.606 Traps and cleanouts.

(a) * * *

(2) *Combination Fixtures.* For the purposes of drainage and ventilation requirements, a two- or three-compartment sink, up to three single sinks, or up to three lavatories may be connected to one “P” trap and considered as a single fixture, so long as the sinks and lavatories are in the same room, have waste outlets not more than

30 inches apart, and have flood level rims at the same level. The “P” trap must be installed at the center fixture when three such fixtures are installed.

* * * * *

■ 22. In § 3280.607, revise paragraphs (a)(3), (b)(2)(v), (b)(3)(iii), add paragraph (b)(3)(v), and revise paragraphs (b)(4)(i), (b)(5)(ii), and (c)(6)(i) through (iii) to read as follows:

§ 3280.607 Plumbing fixtures.

(a) * * *

(3) *Fixture Connections.* Fixture tailpieces and continuous wastes in exposed or accessible locations must be of not less than No. 20 Brown and Sharpe gauge seamless drawn-brass tubing or other approved pipe or tubing materials. Inaccessible fixture connections must be constructed according to the requirements for drainage piping. The diameter of each fixture tailpiece, continuous waste, or waste and overflow must be not less than:

(i) 1½ inches, for sinks of two or more compartments, dishwashers, clothes washing machines, laundry tubs, bathtubs, and showers; and

(ii) Not less than 1¼ inches for lavatories or single compartment sinks having a 2-inch maximum drain opening.

* * * * *

(b) * * *

(2) * * *

(v) *Floor Connection.* Water closets must be securely bolted to an approved flange or other approved fitting that is secured to the floor by means of corrosion-resistant screws. The bolts must be of solid brass or other corrosion-resistant material and must not be less than ¼ inch in diameter. A watertight seal must be made between the water closet and flange or other approved fitting by use of a gasket, sealing compound, or listed connector device.

(3) * * *

(iii) Shower doors and tub and shower enclosures shall be constructed so as to be waterproof and, if glazed, glazing shall comply with the Standard for Safety Glazing Materials used in Buildings—Safety Performance Specifications and Methods of Test, ANSI Z97.1–2004 (incorporated by reference, see § 3280.4).

* * * * *

(v) Shower, bathtub, and tub-shower combination valves must be balanced pressure, thermostatic, or combination mixing valves that conform to the requirements of ASSE 1016–2005, Performance Requirements for Automatic Compensating Values for

Individual Shower and Tub/Shower Combinations (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 to a maximum setting of 120 °F.

(4) * * *

(i) A dishwashing machine must discharge its waste through a fixed air gap installed above the machine, through a high loop as specified by the dishwashing machine manufacturer, or into an open standpipe receptor with a height greater than the washing compartment of the machine. When a standpipe is used, it must be at least 18 inches, but not more than 30 inches, above the trap weir. The drain connections from the air gap or high loop are permitted to connect to an individual trap to a directional fitting installed in the sink tailpiece or to an opening provided on the inlet side of a food waste disposal unit.

* * * * *

(5) * * *

(ii) Standpipes must be either 1½ inch diameter minimum nominal iron pipe size, 1½ inch diameter nominal brass tubing of not less than No. 20 Brown and Sharp gauge, or 1½ inch diameter approved plastic materials. Receptors must discharge into a vented trap or must be connected to a laundry tub appliance by means of an approved or listed directional fitting. Each standpipe must extend not less than 18 inches or more than 42 inches above its trap and must terminate in an accessible location no lower than the top of the clothes washing machine. A removable, tight-fitting cap or plug must be installed on the standpipe when the clothes washer is not provided.

* * * * *

(c) * * *

(6) *Hydromassage bathtub*—(i) *Access panel*. A door or panel of sufficient size must be installed to provide access to the pump for repair or replacement.

(ii) *Piping drainage*. The circulation pump must be accessibly located above the crown weir of the trap. The pump drain line must be properly sloped to drain the volute after fixture use.

(iii) *Piping*. Hydromassage bathtub circulation piping must be installed to be self-draining.

* * * * *

■ 23. In § 3280.609, revise paragraphs (b)(7) and (8) to read as follows:

§ 3280.609 Water distribution systems.

* * * * *

(b) * * *

(7) *Hose bibbs*. When provided, all exterior hose bibbs and laundry sink

hose connections must be protected by a listed nonremovable backflow prevention device. This requirement is not applicable to hose connections provided for automatic washing machines with built-in backflow prevention or water heater drain valves.

(8) *Flushometer tanks*. Flushometer tanks must be equipped with an approved air gap or vacuum breaker assembly that is located above the flood-level rim above the fixture.

* * * * *

■ 24. In § 3280.610, revise paragraphs (b)(1) and (e) to read as follows:

§ 3280.610 Drainage systems.

* * * * *

(b) * * *

(1) *Pipe*. Drainage piping must be standard weight galvanized steel, brass, copper tube DWV, listed Scheduled 40 ABS plastic, listed Scheduled 40 PVC plastic, cast iron, or other listed or approved materials.

* * * * *

(e) *Size of drainage piping*. Fixture drains must be sized as follows:

(1) Fixture drains serving a single lavatory must be a minimum of 1¼ inches in diameter.

(2) Fixture drains serving two or three fixtures must be a minimum of 1½ inches in diameter.

(3) Fixture drains serving four or more fixtures that are individually vented must be a minimum of 2 inches in diameter.

(4) Fixture drains for water closets must be a minimum of 3 inches in diameter.

* * * * *

■ 25. In § 3280.611, revise paragraphs (b)(1), (d), and (f) to read as follows:

§ 3280.611 Vents and venting.

* * * * *

(b) * * *

(1) *Pipe*. Vent piping must be standard weight galvanized steel, brass, copper tube DWV, listed Scheduled 40 ABS plastic, listed Scheduled 40 PVC plastic, cast iron, or other listed or approved materials.

* * * * *

(d) *Mechanical Vents*. Where mechanical vents are used as a secondary vent system for plumbing fixtures that are protected by traps, the mechanical vents must comply with paragraphs (d)(1) or (2) of this section.

(1) Spring-operated mechanical (anti-siphon) vents must comply with the following:

(i) No more than two fixtures individually protected by the spring-operated mechanical vent may be drained by a common 1½ inch diameter drain.

(ii) The drain size for three or more fixtures individually protected by a spring-operated mechanical vent must be at least 2 inches in diameter.

(iii) Spring-operated mechanical vents are restricted to venting fixtures with 1½ inch traps.

(iv) A spring-operated mechanical vent must be installed in a location that allows a free flow of air and is accessible for inspection, maintenance, and replacement. The sealing function must be at least 6 inches above the top of the trap arm.

(v) Materials for the spring-operated mechanical vents must be as follows:

(A) Cap and housing must be listed acrylonitrile-butadiene-styrene, DWV grade;

(B) Stem must be DWV grade nylon or acetal;

(C) Spring must be stainless steel wire, Type 302; and

(D) Sealing disc must be either:

(1) Neoprene, conforming to CISPI-HSN-85, Specification for Neoprene Rubber Gaskets for HUB and Spigot Cast Iron Soil Pipe and Fittings (incorporated by reference, see § 3280.4), and to ASTM C564-97, Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings (incorporated by reference, see § 3280.4); or

(2) Other material, conforming to ASTM C920-02, Standard Specification for Elastomeric Joint Sealants (incorporated by reference, see § 3280.4), and to ASTM D4635-01, Standard Specification for Polyethylene Films Made from Low-Density Polyethylene for General Use and Packaging Applications (incorporated by reference, see § 3280.4).

(2) Gravity-operated mechanical (air admittance valves) vents must comply with the following:

(i) Where installed to vent any fixture, the drain system must have a minimum 1½ inch diameter vent that terminates outside the manufactured home.

(ii) Where gravity-operated mechanical vent devices terminate in the attic cavity, the following requirements must be met:

(A) The attic cavity must be accessible;

(B) The sealing device must be installed a minimum of 6 inches above the insulation materials; and

(C) The attic must be vented in accordance with § 3280.504(c)(1)(i);

(3) Mechanical vents must be installed in accordance with the vent manufacturer's instructions.

* * * * *

(f) *Vent terminal*. Vents must terminate through the roof or wall, or to a mechanical vent device in accordance with paragraph (d) of this section.

(1) *Roof extension.* Each vent pipe must extend through its flashing and terminate vertically. Vents that extend through the roof must extend undiminished in size, not less than 2 inches above the roof. Vent openings must be at least 3 feet away from any motor-driven air intake that opens into any habitable area.

(2) *Wall extensions.* Extensions through exterior walls must terminate downward, have a screen to prevent entrance of birds and rodents, and be located as follows:

(i) Extensions must not be located beneath a door, window, or other opening;

(ii) Extensions must be a minimum of 10 feet above the finished floor;

(iii) Extensions must be located a minimum of 2 feet above any building opening that is within 10 feet horizontally of any extension; and

(iv) Extensions must not terminate under an overhang with soffit vents.

(3) *Flashing.* The opening around each vent pipe shall be made watertight by an adequate flashing or flashing material.

* * * * *

■ 26. In § 3280.702:

■ a. Revise the definitions of “Class 0 air ducts,” and “Class 1 air ducts”;

■ b. Remove the definition of “Class 2 air ducts”;

■ c. Add in alphabetical order definitions of “Combination space heating and water heating appliance,” “Direct-vent system,” and “Direct-vent system appliance”;

■ d. Remove the definition of “Energy efficiency ratio (EER)”;

■ e. Revise the definitions of “Heating appliance” and “Water heater”.

The additions and revisions 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 181–2003, Factory-Made Air Ducts and Air Connectors (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 181–2003, Standard for Safety Factory-Made Air Ducts and Air Connectors (incorporated by reference, see § 3280.4).

* * * * *

Combination space heating and water heating appliance means a listed unit that is designed to provide space heating and water heating from a single primary energy source.

* * * * *

Direct-vent system means a system or method of construction where all air for combustion is derived directly from the outside atmosphere and all flue gases are discharged to the outside atmosphere.

Direct-vent system appliance means an appliance that is installed with a direct vent system.

* * * * *

Heating appliance means an appliance for comfort heating, domestic water heating, or a combination of comfort heating and domestic water heating.

* * * * *

Water heater means an appliance for heating water for domestic purposes.

■ 27. In § 3280.703:

■ a. Under the undesignated heading “Appliances,” add a reference standard for “Decorative Gas Appliances for Installation in Solid Fuel Burning Appliances” after the standard for “Gas-Fired Central Furnace”;

■ b. Under the undesignated heading “Nonferrous Pipe, Tubing, and Fittings,” revise the reference standard for “Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service”; and

■ c. Under the undesignated heading “Miscellaneous,” revise the reference standards for “Factory-Made Air Ducts and Connectors,” “Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply System,” “Gas Appliance Thermostats,” and “Standard for the Installation of Oil-Burning Equipment.”

The revisions and additions to read as follows:

§ 3280.703 Minimum standards.

* * * * *

Appliances

* * * * *

Decorative Gas Appliances for Installation in Solid Fuel Burning Fireplaces—RADCO DS–010–91

(incorporated by reference, see § 3280.4).

* * * * *

Nonferrous Pipe, Tubing, and Fittings

* * * * *

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

* * * * *

Miscellaneous

Factory-Made Air Ducts and Air Connectors, UL 181, Ninth Edition, April 4, 1996, with revisions through May 15, 2003 (incorporated by reference, see § 3280.4).

* * * * *

Relief Valves for Hot Water Supply Systems, ANSI Z21.22–1999, (incorporated by reference, see § 3280.4).

* * * * *

Gas Appliance Thermostats—ANSI Z21.23–93 (incorporated by reference, see § 3280.4).

* * * * *

Standard for the Installation of Oil-Burning Equipment, NFPA 31–01 (incorporated by reference, see § 3280.4).

* * * * *

§ 3280.704 [Removed and Reserved]

■ 28. Remove and reserve § 3280.704.

■ 29. Amend § 3280.705 as follows:

■ a. Add paragraph (b)(5);

■ b. Add Table to paragraph (d);

■ c. Revise paragraph (f)(1);

■ d. Revise paragraph (h); and

■ e. Remove the Table designated “Part I” and the reference to “Part II [Reserved]”.

The additions and revisions read as follows:

§ 3280.705 Gas piping systems.

* * * * *

(b) * * *

(5) Corrugated stainless steel tubing (CSST) systems must be listed and installed in accordance with ANSI/IAS LC–1–1997, Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST) (incorporated by reference, see § 3280.4), and the requirements of this section.

* * * * *

(d) * * *

TABLE TO PARAGRAPH (D)—MAXIMUM CAPACITY OF DIFFERENT SIZES OF PIPE AND TUBING IN THOUSANDS OF BTU/HR OF NATURAL GAS FOR GAS PRESSURES OF 0.5 PSIG OR LESS, AND A MAXIMUM PRESSURE DROP OF 1/2 IN. WATER COLUMN

ID (in.)		10 ft	20 ft	30 ft	40 ft	50 ft	60 ft	70 ft	80 ft	90 ft	100 ft
Iron Pipe Sizes—Length											
1/4		43	29	24	20	18	16	15	14	13	12
3/8		95	65	52	45	40	36	33	31	29	27
1/2		175	120	97	82	73	66	61	57	53	50
3/4		360	250	200	170	151	138	125	118	110	103
1		680	465	375	320	285	260	240	220	215	195
EHD ²	ID (in.)	10 ft	20 ft	30 ft	40 ft	50 ft	60 ft	70 ft	80 ft	90 ft	100 ft
Corrugated Stainless Steel Tubing—Length ¹											
13	3/8	31	21	17	14	13	12	11	10	10	9
15	3/8	42	30	24	20	18	16	15	14	13	12
18	1/2	79	56	45	39	36	33	30	28	27	25
19	1/2	91	64	52	45	40	36	35	32	31	29
23	3/4	155	111	92	80	72	65	60	58	55	52
25	3/4	184	132	108	93	84	77	71	66	62	60
30	1	317	222	180	156	138	126	116	108	103	97
31	1	368	258	209	180	161	147	135	127	120	113
37	1 1/4	598	426	350	304	273	250	231	217	205	195
OD (in.)		10 ft	20 ft	30 ft	40 ft	50 ft	60 ft	70 ft	80 ft	90 ft	100 ft
Copper Tubing—Length											
1/4		27	18	15	13	11	10	9	9	8	8
3/8		56	38	31	26	23	21	19	18	17	16
1/2		113	78	62	53	47	43	39	37	34	33
3/4		197	136	109	93	83	75	69	64	60	57
1		280	193	155	132	117	106	98	91	85	81

¹ Includes losses for four 90-degree bends and two end fittings. Tubing runs with larger numbers of bend and/or fittings shall be increased by an equivalent length of tubing according to the following equation: $L = 1.3n$, where L is actual length (ft) of tubing and n is the number of additional fittings and/or bends.

² EHD (Equivalent Hydraulic Diameter)—A measure of the hydraulic efficiency between different tubing sizes.

* * *

(f) * * *

(1) Tubing joints shall be made with either a single or a double flare of 45 degrees in accordance with Flares For Tubing, SAE-J533b-1992 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.

* * *

(h) *Concealed tubing.* (1) Copper tubing must not be run inside walls, floors, partitions, or roofs. Corrugated stainless steel tubing (CSST) may be run inside walls, floors, partitions, and roofs under the following conditions:

(i) The CSST is protected from accidental puncture by a steel strike barrier not less than 0.058 inch thick, or the barrier's equivalent, installed between the tubing and the finished wall and extending 4 inches beyond concealed penetrations of plates, firestops, and wall studs, or specified by the tubing manufacturer's instructions; and

(ii) The CSST is installed in single runs and is not rigidly secured.

(2) Where tubing passes through exterior walls, floors, partitions, or similar construction, the tubing must be protected by the use of weather-resistant grommets that snugly fit both the tubing and the hole through which the tubing passes, or protected as specified in the tubing manufacturer's instructions.

(3) Concealed joints: Piping or tubing joints must not be located in any wall, floor, partition, or similar concealed construction space.

* * *

■ 30. In § 3280.706, revise paragraph (j) to read as follows:

§ 3280.706 Oil piping systems.

* * *

(j) *Testing Tag.* A tag must be affixed to each oil-fired appliance stating: "Before setting the system in operation, tank installations and piping must be checked for oil leaks with fuel oil of the same grade that will be burned in the appliance. No other material may be used for testing fuel oil tanks and piping. Tanks must be filled to maximum capacity for the final check for oil leakage."

■ 31. In § 3280.707, revise paragraph (a)(2), add paragraph (d) introductory text, and revise paragraphs (d)(2) and (f) introductory text to read as follows:

§ 3280.707 Heat producing appliances.

(a) * * *

(2) Each gas and oil burning comfort heating appliance must have an Annual Fuel Utilization Efficiency of not less than that specified in 10 CFR part 430, Energy Conservation Program for Consumer Products: Test Procedures for Furnaces/Boilers, Vented Home Heating Equipment and Pool Heaters.

* * *

(d) *Performance efficiency.* Each automatic storage water heater must comply with the efficiency requirements of 10 CFR part 430, Energy Conservation Program for Consumer Products: Energy Conservation Standards for Water Heaters.

* * *

(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 Z21.10.1–1998 with addendums

Z21.10.1a–2000, and Z21.10.1b–1992, 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.

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 Liquid Fuel-burning Heating Appliances for Manufactured Homes and Recreational Vehicles, UL 307A–1995, with 1997 revisions, and be installed in accordance with Standard for the Installation of Oil Burning Equipment, NFPA 31–01 (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:

* * * * *

■ 32. Revise § 3280.711 to read as follows:

§ 3280.711 Instructions.

Operating instructions must be provided with each appliance. The operating and installation instructions for each appliance must be provided with the homeowner's manual.

■ 33. Amend § 3280.714 as follows:

■ a. Add “(incorporated by reference, see § 3280.4)” immediately following “Heat Pump Equipment” in paragraph (a)(1) introductory text and immediately following “Heat Pump Appliances” in paragraph (a)(2); and

■ b. Revise paragraphs (a)(1)(i) and (ii). The revisions read as follows:

§ 3280.714 Appliances, cooling.

(a) * * *

(1) * * *

(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 ARI standard rating conditions in ARI Standard 210/240–89, Unitary Air-Conditioning and Air-Source Heat Pump Equipment, 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 ARI Standard 210/240–89, Unitary Air Conditioning and Air-Source Heat Pump Equipment. 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 ARI Standard 210/240–89, Unitary Air-Conditioning and Air-Source Heat Pump Equipment, 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.

* * * * *

■ 34. In § 3280.715, revise paragraphs (a)(1) introductory text, (a)(5)(ii), (a)(7), and (d) to read as follows:

§ 3280.715 Circulating air systems.

(a) * * *

(1) Supply air ducts, fittings, and any dampers contained therein must be made of galvanized steel, tin-plated steel, or aluminum, or must be listed as Class 0 or Class 1 air ducts and air connectors in accordance with UL 181–2003, Factory-Made Air Ducts and Air Connectors (incorporated by reference, see § 3280.4). Class 1 air ducts and air connectors must be located at least 3 feet from the furnace bonnet or plenum. Air connectors must not be used for exterior manufactured home duct connection. 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. Furnace supply plenums must be constructed of metal that extends a minimum of 3 feet from the heat exchanger measured along the centerline of airflow. Ducts constructed from sheet metal must be in accordance with the following table:

* * * * *

(5) * * *

(ii) The manufacturer must provide installation instructions for supporting,

mechanically fastening, sealing, and insulating each crossover duct. The instructions must indicate that no portion of the crossover duct is to be in contact with the ground, and must describe the means to support the duct without compressing the insulation and restricting airflow.

* * * * *

(7) Unless installed in a basement, supply and return ducts, fittings, and crossover duct plenums exposed directly to outside air, such as those under-chassis crossover ducts or ducts connecting external heating, cooling, or combination heating/cooling appliances, must be insulated with material having a minimum thermal resistance of R–8 in all Thermal Zones. All such insulating materials must have a continuous vapor barrier retarder having a perm rating of not more than 1 perm. Where ducts are exposed underneath the manufactured home, they must comply with paragraph (a)(5)(ii) of this section, and shall be listed for exterior use.

* * * * *

(d) *Supports and protection.* Ducts must be securely supported. Nails or other fasteners must not be driven or penetrate through duct walls. Where vertical ducts are installed within closets or rooms, they must be enclosed with materials equivalent to those used in the closet or room construction.

* * * * *

■ 36. In § 3280.802, revise paragraphs (a)(37) and (39) to read as follows:

§ 3280.802 Definitions.

(a) * * *

(37) *Receptacle* means a contact device installed at the outlet for the connection of an attachment plug. A single receptacle is a single contact device with no other contact device on the same yoke. A multiple receptacle is a device with two or more contact devices on the same yoke.

* * * * *

(39) *Utilization equipment* means equipment that utilizes electric energy for electronic, electromechanical, chemical, heating, lighting, or similar purposes.

* * * * *

■ 37. In § 3280.803, revise paragraphs (d), (f), (i), and (k)(2) and (3) to read as follows:

§ 3280.803 Power supply.

* * * * *

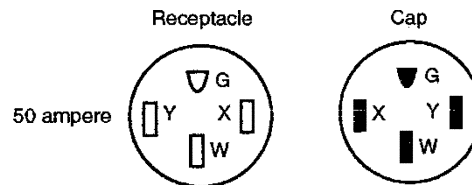
(d) A suitable clamp or the equivalent must be provided at the distribution panelboard knockout to afford strain relief for the cord to prevent strain from

being transmitted to the terminals when the power supply cord is handled in its intended manner.

* * * * *

(f) The attachment plug cap must be a 3-pole, 4-wire, grounding type, rated 50 amperes, 125/250 volts, intended for use with the 50-ampere, 125/250-volt receptacle configuration, as shown below. The cap must be listed, by itself

or as part of a power-supply cord assembly, for the purpose, and must be molded to or installed on the flexible cord so that it is secured tightly to the cord at the point where the cord enters the attachment plug cap. If a right-angle cap is used, the configuration must be so oriented that the grounding member is farthest from the cord.



Note: 50-ampere 125/250-volt receptacle and attachment plug cap configurations, 3-pole, 4-wire, grounding types used for manufactured home supply cords and manufactured home parks. Complete details of the 50-ampere cap and receptacle can be found *Wiring Device Dimensional Requirements* (ANSI/NEMA WD-6-1997).

Figure 1 to paragraph (f)

(i) Where the cord passes through walls or floors, it must be protected by means of conduits and bushings or the equivalent. The cord is permitted to be installed within the manufactured home walls, provided that a continuous raceway having a maximum size of 1¼ inch is installed from the branch-circuit panelboard to the underside of the manufactured home floor.

* * * * *

(k) * * *

(2) A listed metal raceway or listed rigid nonmetallic conduit from the disconnecting means in the manufactured home to the underside of the manufactured home, with provisions for the attachment of a suitable junction box or fitting to the raceway on the underside of the manufactured home. The manufacturer must provide written installation instructions stating the proper feeder conductor sizes for the raceway and the size of the junction box to be used; 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 the National Electrical Code, NFPA 70–2005 (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) Means are provided for the connection of the grounding electrode conductor to the service equipment and routing it to the conductor outside the structure;

(iv) Bonding and grounding of the service must be in accordance with Article 250, NFPA 70–2005, National Electrical Code (incorporated by reference, see § 3280.4);

(v) 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 70–2005, National Electrical Code;

(vi) 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).

■ 38. In § 3280.804, revise paragraphs (a), (c), (e), and (f) to read as follows:

§ 3280.804 Disconnecting means and branch-circuit protective equipment.

(a) The branch-circuit equipment is permitted to be combined with the disconnecting means as a single

assembly. Such a combination is permitted to be designated as a distribution panelboard. If a fused distribution panelboard is used, the maximum fuse size for the mains shall be plainly marked, with the lettering at least 1/4-inch high and visible when fuses are changed. See Article 110–22 of NFPA 70–2005, National Electrical Code (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) *Disconnecting means.* A single disconnecting means must be provided in each manufactured home, 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 manufactured home. The main circuit breakers or fuses must be plainly marked “Main.” This equipment must contain a solderless type of grounding connector or bar for the purposes of grounding, with sufficient terminals for all grounding conductors. The neutral bar termination of the grounded circuit conductors must be insulated in accordance with § 3280.809(b).

* * * * *

(e) A distribution panelboard employing a main circuit breaker must be rated not less than 50 amperes and employ a 2-pole circuit breaker rated 40 amperes for a 40-ampere supply cord, or

50 amperes for a 50-ampere supply cord. A distribution panelboard employing a disconnect switch and fuses must be rated not less than 60 amperes and must employ a single, 2-pole fuseholder rated not less than 60 amperes with 40- or 50-ampere main fuses for 40- or 50-ampere supply cords, respectively. The outside of the distribution panelboard must be plainly marked with the fuse size.

(f) The distribution panelboard must be located in an accessible location, and must not be located in a bathroom or a clothes closet. A clear working space at least 30 inches wide and 30 inches in front of the distribution panelboard must be provided. This space must extend from the floor to the top of the distribution panelboard. Where used as switches, circuit breakers must be installed so that the center of the grip of the operating handle of the circuit breaker, when in its highest position, will not be more than 6 feet, 7 inches above the floor.

* * * * *

■ 39. In § 3280.805, add a sentence at the end of paragraph (a)(1), revise paragraphs (a)(2) and (a)(3)(i), and add paragraph (a)(3)(vi) to read as follows:

§ 3280.805 Branch circuits required.

(a) * * *
(1) * * * Lighting circuits are permitted to serve built-in gas ovens with electric service for lights, clocks, or timers, or for listed cord-connected garbage disposal units.

(2) *Small Appliances.* For the small appliance load in kitchens, pantries, dining rooms, and breakfast rooms of manufactured homes, two or more 20-ampere appliance branch circuits, in addition to the branch circuit specified in paragraph (a)(1) of this section, must be provided for all receptacle outlets in these rooms, and such circuits must have no other outlets. Countertop receptacle outlets installed in the kitchen must be supplied by not less than two small appliance branch circuits. One or more of the small appliance branch circuits may also supply other receptacle outlets in the kitchen, pantry, dining room, and breakfast room. Receptacles installed solely for the electrical supply to an electric clock and receptacles installed to provide power for supplemental equipment and lighting on gas-fired ranges, ovens, or counter-mounted cooking units are not subject to the requirements of this paragraph (a)(2).

(3) * * *
(i) The ampere rating of fixed appliances must not exceed 50 percent of the circuit rating if lighting outlets are

on the same circuit (receptacles in the kitchen, dining area, and laundry are not considered to be lighting outlets);

* * * * *

(vi) Bathroom receptacle outlets must be supplied by at least one 20-ampere branch circuit. Such circuits must have no other outlets, except that it is permissible to place the receptacle outlet for a heat tape or pipe heating cable required by § 3280.806(d)(10) on a bathroom circuit. (See § 3280.806(b).)

* * * * *

■ 40. In § 3280.806, revise paragraphs (b) and (d) introductory text, redesignate paragraph (d)(10) as paragraph (d)(11), add new paragraph (d)(10) and paragraph (g) to read as follows:

§ 3280.806 Receptacle outlets.

* * * * *

(b) All 125-volt, single-phase, 15- and 20-ampere receptacle outlets installed outdoors, or in compartments accessible from outside the manufactured home, and in bathrooms, including receptacles in light fixtures, must have ground-fault circuit-interrupter protection for personnel. Ground-fault circuit-interrupter protection for personnel must be provided for receptacles serving countertops in kitchens and receptacle outlets located within 6 feet of a wet bar sink, except for receptacles installed for appliances in dedicated spaces, such as dishwashers, disposals, refrigerators, freezers, and laundry equipment.

* * * * *

(d) *Receptacle outlets required.* Except in the bath, closet, and hall areas, receptacle outlets must be installed at wall spaces 2 feet or more wide, so that no point along the floor line is more than 6 feet, measured horizontally, from an outlet in that space. Receptacle outlets in floors shall not be counted as part of the required number of receptacle outlets, unless located within 18 inches of the wall. In addition, a receptacle outlet must be installed in the following locations:

* * * * *

(10) On the underside of the home for the connection of pipe heating cable(s) or heat tape(s), and the outlet must:

(i) Be located within 2 feet of the cold water inlet;

(ii) Be connected to an interior branch circuit, other than a small appliance branch circuit;

(iii) Be located on a circuit where all of the outlets are on the load side of the ground-fault circuit-interrupter protection for personnel; and

(iv) Not be considered as the receptacle outlet required by paragraph (8) of this section.

* * * * *

(g) Receptacles must not be in a face-up position in any countertop.

■ 41. In § 3280.807, revise 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 410.4(D) of the National Electrical Code NFPA No. 70–2005.]

* * * * *

■ 42. In § 3280.808,

■ a. Revise paragraphs (f), (h), (i) introductory text, (i)(1), and (k);

■ b. Remove paragraph (l);

■ c. Redesignate paragraphs (m) through (r) as paragraphs (l) through (q); and

■ d. Revise newly redesignated paragraph (o)(2),

The revisions read as follows:

§ 3280.808 Wiring methods and materials.

* * * * *

(f) Where metal faceplates are used, they must be effectively grounded.

* * * * *

(h) Where rigid metal conduit or intermediate metal conduit is terminated at an enclosure with a locknut and bushing connection, two locknuts must be provided, one inside and one outside of the enclosure. Rigid nonmetallic conduit or electrical nonmetallic tubing is permitted. All cut ends of conduit and tubing must be reamed or otherwise finished to remove rough edges.

(i) Switches must be rated as follows:

(1) For lighting circuits, switches must be rated not less than 10 amperes, 120 to 125 volts, and in no case less than the connected load.

* * *

(k) When outdoor or under-chassis line-voltage (120 volts, nominal or higher) wiring is exposed to moisture or physical damage, it must be protected by rigid metal conduit or intermediate metal conduit. The conductors must be suitable for wet locations. Electrical metallic tubing or rigid nonmetallic conduit is permitted to be used when closely routed against frames and equipment enclosures.

* * * * *

(o) * * *

(2) Conductors having an insulation suitable for the temperature encountered may be run from the appliance terminal connections to a readily accessible outlet box placed at least one foot from the appliance. If provided, these conductors must be in a suitable raceway or Type AC or MC

cable, of at least 18 inches but not more than 6 feet in length.

* * * * *

■ 43. In § 3280.813, revise paragraph (b) to read as follows:

§ 3280.813 Outdoor outlets, fixtures, air-conditioning equipment, etc.

* * * * *

(b) A manufactured home provided with a branch circuit designed to energize outside heating equipment or air-conditioning equipment, other than room air conditioners, or both, located outside the manufactured home, other than room air conditioners, must have such branch-circuit conductors terminate in a listed outlet box, or disconnecting means, located on the outside of the manufactured home.

(1) A label must be permanently affixed adjacent to the outlet box. The label must be not less than 0.020-inches thick etched brass, stainless steel, anodized or alclad aluminum, or equivalent, and must not be less than 3 inches × 1¾ inches in size.

(2)(i) The label must include the correct voltage and ampere rating and the following information:

THIS CONNECTION IS FOR HEATING AND/OR AIR-CONDITIONING EQUIPMENT. THE BRANCH CIRCUIT IS RATED AT NOT MORE THAN AMPERES, AT VOLTS, 60–HERTZ, CONDUCTOR AMPACITY. A DISCONNECTING MEANS IS LOCATED WITHIN SIGHT OF THE EQUIPMENT.

(ii) The correct voltage and ampere rating shall be given. The tag must be not less than 0.020-inches thick etched brass, stainless steel, anodized or alclad aluminum, or equivalent. The tag must have a minimum size of not less than 3 inches × 1¾ inches.

■ 44. In § 3280.815, revise paragraph (a) as follows:

§ 3280.815 Polarization.

(a)(1) Except as provided in paragraph (a)(2) of this section, the white conductor must be employed for the grounded (neutral) circuit conductors only and must be connected to the

white terminal or lead on receptacle outlets and fixtures. The grounded conductor must be the unswitched wire in switched circuits.

(2) A cable containing an insulated conductor with a white or natural gray outer finish or a marking of three continuous white stripes may be used for single-pole, three-way, or four-way switch loops, where this conductor is used for the supply to the switch, but not as a return conductor from the switch to the switched outlet. In these applications, the conductor with white or natural gray insulation or with three continuous white stripes must be permanently re-identified to indicate its use by painting or other effective means at its terminations and at each location where the conductor is visible and accessible.

* * * * *

Dated: November 22, 2013.

Carol Galante,

*Acting Assistant Secretary for Housing—
Federal Housing Commissioner.*

[FR Doc. 2013–28775 Filed 12–6–13; 8:45 am]

BILLING CODE 4210–67–P



MHCC MEETING
December 2-4, 2014

APPENDIX G:
FEDERAL MANUFACTURED HOUSING
PROGRAM
MULTIFAMILY HOUSING DISCUSSION
PRESENTATION

By H. Lane Pethel



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-8000

OFFICE OF HOUSING

OCT - 3 2014

MEMORANDUM FOR: All PIAs, SAAs

FROM: Pamela Beck Danner
Administrator
Office of Manufactured Housing Programs

SUBJECT: Manufactured Homes Designed, Built, or Sold for Other than Single Family Use

Over the past several months, the Department has been made aware of instances where manufactured homes have been designed, built or sold for purposes of other than Single Family Use. Upon considering this information, the Department is issuing this correspondence to all industry stakeholders for clarity, uniformity and consistency of the Department's position and serves as a reminder of potential penalties for violations of the Manufactured Home Procedural and Enforcement Regulations (24 CFR Part 3282).

As you are aware, the regulations set the responsibilities and requirements for all stakeholders to which this communication is being sent. Specifically related to this correspondence:

§ 24 CFR 3280.2 states:

Manufactured home means; ... 320 or more square feet, and which is built on a permanent chassis and designed to be used as a dwelling...

Dwelling unit means; one or more habitable rooms which are designed to be occupied by one family with facilities for living, sleeping cooking and eating.

§24 CFR 3282.8(l) states:

"Multifamily homes. Mobile homes designed and manufactured with more than one separate living area are not covered by the standards and these regulations."

Accordingly, manufacturers may not design or build manufactured homes labeled pursuant to the National Manufactured Home Construction and Safety Standards for multifamily or other non-single family residential use. Moreover, any manufactured home built under the federal program and bearing a HUD Certification Label may not be sold for purposes other than Single Family Use.

To avoid civil and criminal penalties associated with failing to comply with the regulations (refer to 24 CFR 3282.10), the Department is seeking your cooperation and heightened attention in ensuring that manufactured homes designed, manufactured and sold under the provisions of the Federal Manufactured Home Construction and Safety program are only for Single Family Use.

Moving forward, the Department will be referring cases involving manufactured homes designed, built or sold for other than Single Family Use to its Office of General Counsel for further enforcement action.

We ask the third party agencies to please distribute this memorandum to their manufacturer clients. If you have any questions regarding this issue, please contact your agency's HUD liaison of this office at (202) 708-6423.



Federal Manufactured Housing Program

Multifamily Housing Discussion

Presented by: H. Lane Pethel

Supported by: Jason McJury

HUD's MISSION:

"TO CREATE STRONG, SUSTAINABLE, INCLUSIVE COMMUNITIES AND QUALITY AFFORDABLE HOMES FOR ALL."

1



3 October 2014 Memorandum



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20548-0001

RE: 10-100

MEMORANDUM FOR: ALL PHA SAAs

FROM: Patrick Buck Shuman
Administrator
Office of Manufactured Housing Programs

SUBJECT: Manufactured Homes Designed, Built, or Sold for Other than
Single Family Use

Over the past several months, the Department has been made aware of numerous where manufactured homes have been designed, built or sold for purposes of other than Single Family Use. Upon examining this information, the Department is issuing this correspondence to all industry stakeholders for clarity, uniformity and consistency of the Department's position and serves as a reminder of potential penalties for violations of the Manufactured Home Procedural and Enforcement Regulations (24 CFR Part 3282).

As you are aware, the regulations set the responsibilities and requirements for all stakeholders to which this correspondence is being sent. Specifically related to this correspondence:

§ 24 CFR 3282.2 (a)(1):

Manufactured home means: ... ADU or more square feet, and which is built on a permanent chassis and designed to be used as a dwelling...

(dwelling unit means: one or more habitable rooms which are designed to be occupied by one family with facilities for living, sleeping, cooking and eating)

§ 24 CFR 3282.3 (a)(1):

"Mobile home, mobile home designed and manufactured with more than one separate living area are not covered by the standards and these regulations."

cc: [redacted] [redacted]

Accordingly, manufacturers may not design or build manufactured homes (which are not the Federal Manufactured Home Construction and Safety Standards (or mobile home) or other non-single family residential use. Moreover, any manufactured home built under the Federal program and bearing a HUD Certificate Label may not be sold for purposes other than Single Family Use.

To avoid civil and criminal penalties associated with failing to comply with the regulations under 24 CFR 3282.3(b), the Department is seeking your cooperation and heightened attention in ensuring that manufactured homes designed, constructed and sold under the provisions of the Federal Manufactured Home Construction and Safety program are only for Single Family Use.

Moving forward, the Department will be reviewing cases involving manufactured homes designed, built or sold for other than Single Family Use to its Office of General Counsel for further enforcement action.

We ask the third party agencies to please disseminate this memorandum to their manufacturers clients. If you have any questions regarding this memorandum, please contact your agency's HUD liaison at the office at (202) 788-6425.



Objective Considerations

- Multiple Kitchens
- Exterior access/egress from multiple sleeping rooms
- Many bathrooms and unusual bathroom configurations
- Lack of identified sleeping areas
- Fluorescent lighting throughout

3



3280 Does NOT Address

- Fire-resistance construction (walls, openings)
- Fire protection systems (fire extinguishers, sprinkler)
- Means of egress (exit signs, corridor width)
- Accessibility (entrances, toilet facilities)
- Electrical Requirements (emergency lighting, outlet locations)
- Structural (floor loads, concentrated loads)

4



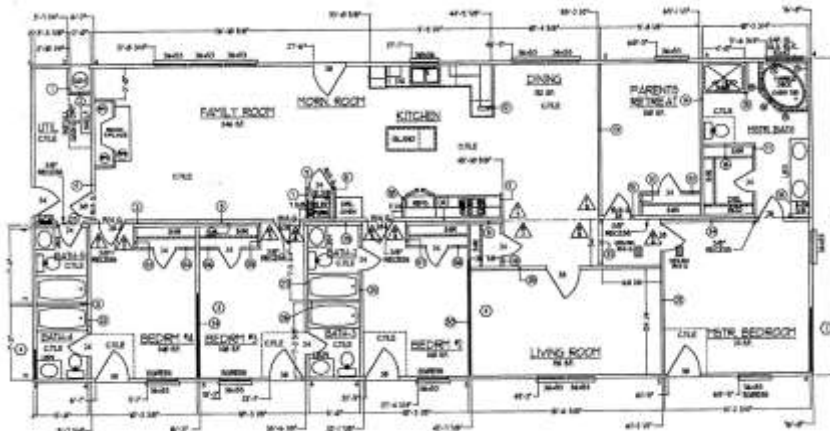
Multifamily High Rise?



5



Examples of DAPIA Approved Plans

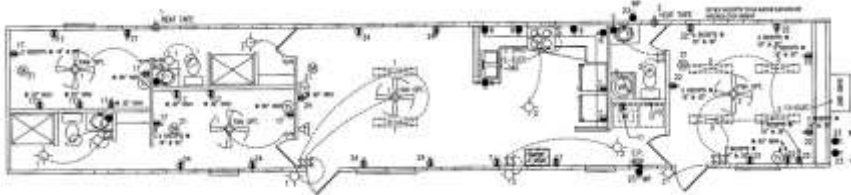


6





Examples of DAPIA Approved Plans



11



Examples of DAPIA Approved Plans



12





Discussion

QUESTIONS?



MANUFACTURED HOUSING CONSENSUS COMMITTEE

1.888.602.4663 | HUD.GOV/MHS

MHCC MEETING

December 2-4, 2014

APPENDIX H: GARAGES/ADD-ONS PRESENTATION

By Manuel Santana



OFFICE OF HOUSING

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

WASHINGTON, DC 20410-8000

NOV 10 2014

MEMORANDUM FOR: All DAPIAs

FROM:

Pamela Beck Danner
Administrator
Office of Manufactured Housing Programs

A handwritten signature in dark ink, appearing to read "Pamela Beck Danner", written over the typed name.

SUBJECT:

Additional DAPIA Guidance for Review and Processing of
Manufacturers Alternative Construction Requests for Attached
Garages

The purpose of this memorandum is to provide additional guidance to DAPIAs in order to facilitate HUD's review and acceptance of manufacturers Alternative Construction (AC) requests for attached garages. Recent manufacturer submissions have been processed by DAPIAs and submitted to HUD without all necessary information or substantiation needed by the Department to approve and issue the AC approvals.

In addition to the information on attached garages previously provided to manufacturers and DAPIAs in my memorandum of June 12, 2014 (see attached), and to manufacturers and DAPIAs at the HUD meeting of May 13, 2014 (see attached), our review of recent AC requests by manufacturers being submitted from DAPIAs to HUD are incomplete and are resulting in unnecessary delays in processing those AC requests.

In order to be considered complete, AC request packages must address each option, scenario, and structural consideration such as multiple roof loads and wind zones. At a minimum, DAPIAs need to assure that each request includes the following:

1. Clear identification of the specific construction to be completed in the factory and the specific construction to be completed on site.
2. Complete design and installation details and information for each AC home design to allow for compliant factory construction and on-site completion of each AC home needed to facilitate accountability and inspection verification throughout all aspects of the construction.
3. Adequate engineering substantiation or tests that demonstrate compliance with the Standards and acceptable engineering practice and that at least address worst case design scenarios.

The following is a list of the most common information or substantiation not being provided or completely addressed by manufacturers and their DAPIAs and is resulting in unnecessary delays in reviewing and processing attached garage AC requests by my office:

- Complete and comprehensive designs for each attached garage orientation and location being requested including a complete design to address factory and on-site construction details.
- Complete details including fastening and substantiation to indicate whether the garage is being attached to and supported by the manufactured home structure or is independently supported.
- Complete instructions for at least one method of supporting and anchoring the home that includes pier or foundation support details required for each garage orientation being requested.
- All truss orientations and their designs and substantiation including any repair/ reinforcement details for trusses that are permitted to be modified on-site.
- Roof dormer details to be completed on-site including substantiation for dormer dead loads on the supporting manufactured home roof structure and trusses.
- Engineering analysis and details for the load transfer between diaphragms and shear walls, and foundation/anchorage for shear and uplift considerations, when the home is designed to structurally support the garage.
- Agreement between construction details and substantiation being provided for each design and garage orientation.
- A list of any existing AC letters that will be also utilized in conjunction with each attached garage AC request including hinged roofs, roof ridge interconnections, and completion of roof jacks/vents for fuel burning appliances.

As the Regulations require DAPIAs to completely review these designs and verify that homes built will meet the Standards in all other respects, the Department expects that DAPIAs will fully review and identify missing, incomplete, or inadequate attached garage AC requests prior to their submission to the Department. Also, as appropriate, once satisfied that the designs submitted for attached AC garage requests are complete, DAPIAs are to stamp each page of the plans and supporting calculations and/or tests prior to their submission to HUD.

Please forward this Memorandum to your manufacturer clients in order to facilitate review and processing of future attached garage AC requests by the Department. If you have any additional questions, please contact Eric Bers at (202) 402-2123.



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-8000

OFFICE OF HOUSING

JUN 12 2014

MEMORANDUM FOR: All IPIAs and DAPIAs

FROM:

Pamela Beck Danner
Administrator
Office of Manufactured Housing Programs

SUBJECT:

Construction of On-Site Installation of Add-ons, such as an Attached Garage

The purpose of this Memorandum is to clarify the definition and scope of "Add-On" structures to a manufactured home. In 24CFR §3282.7, "Add-on means any structure (except a structure designed or produced as an integral part of a manufactured home) which, when attached to the basic manufactured home unit, increases the area, either living or storage, of the manufactured home."

The Department has recently become aware that several manufacturers are producing homes that are subsequently modified in the field with "add-ons" such as a garage, family room, sun room, enclosed deck, etc. The discussion that follows relates principally to the on-site installation of an attached garage, although it could also apply to the types of structures stated above.

In particular, the Department is concerned about certain design and other factors when an attached garage is installed on-site including the load bearing effect on the manufactured home when a self-supporting garage is not provided; the possible removal of the secondary means of exterior egress from the manufactured home when the garage is attached; and the adequacy and completeness of the fire wall separation between the garage and manufactured home. There are many other design factors that may need to be addressed such as ventilation, lighting, foundation, through the roof venting, fire blocking, etc. If a manufacturer offers designs to facilitate attached garages, HUD approval is required in accordance with §3282.14, Alternative Construction (AC) of Manufactured Homes.

In some cases, manufacturers have been building compliant homes and selling to retailers and homebuyers who then construct garages. The home is compliant when it leaves the factory. In some cases the retailer may have taken the home out of compliance to add an attached garage. Retailers may not sell or lease a manufactured home that has been altered in such a way which "causes a failure to conform to applicable Federal standards (§3282.254)."

The Department is currently working with manufacturers that have recently submitted proposals for an AC for an add-on garage. All manufacturers who sell homes to retailers who intend to construct attached garages will need to submit an AC request in accordance with §3282.14 of the Manufactured Home Construction and Safety Standards (MHCSS) Act. HUD has detailed information about what it will expect in an AC request. (For example, see attached redacted sample AC.)

With respect to homes that may have been designed and constructed for attached garages and which do not have AC approval, HUD expects manufacturers to make a determination under Subpart I of the Manufactured Home Procedural and Enforcement Regulations (§3282.404). HUD will allow manufacturers to obtain AC approvals and continue to build garages pursuant to an approved AC at the

same time they are conducting Subpart I determinations as long as the manufacturer provides information to the Department regarding its conduct of a Subpart I investigation with its AC request.

Please forward this Memorandum to your manufacturers.

Further information can be obtained by contacting Eric Bers at 202-402-2123.

Garages/Add-Ons

Current Code Justification

Add – On Applicability

§ 3282.8 Applicability.

(j) *Add-on.* An add-on added by the dealer or some other party not the manufacturer ...is not governed by the standards and is not subject to these regulations.

However, the addition of the add-on must not affect the ability of the basic manufactured home to comply with the standards. If the addition of an add-on causes the basic manufactured home to fail to conform to the standards, sale, lease, and offer for sale or lease of the home is prohibited until the manufactured home is brought into conformance with the standards.

While the standards do not govern add-ons, the Secretary has the authority to promulgate standards for add-ons and may do so in the future.

Add-On Discussion

- The regs specify that add-ons are outside the standards as long as they don't bring the home out of compliance with the code.
- If the home is brought out of compliance, it must be corrected before it's sold. There is no prohibition against this work being done
- To my knowledge, HUD has not promulgated standards to govern add-ons.

AC Letter Qualifications

§ 3282.14 Alternative construction of manufactured homes.

- (1) Where a manufacturer proposes to utilize construction that would be prohibited by the Standards;
- (2) Where such construction would provide performance that is equivalent to or superior to that required by the Standards; and
- (3) Where (i) compliance with the Standards would be unreasonable... or (ii) (test house)

AC Discussion

- The home must be in conflict with some portion of the HUD code to qualify for an AC letter.
- Other than a test house, it isn't for something new or different, it's only for non-conforming houses.
- If the home leaves the plant in conformance with the standards, and it is in conformance with the standards when it's sold, then it doesn't qualify for an AC letter.

Site Alterations

§ 3282.254 Distributor and dealer alterations.

- (a) If a distributor or dealer alters a manufactured home in such a way as to create an imminent safety hazard or to create a condition which causes a failure to conform with applicable Federal standards, the manufactured home affected may not be sold, leased, or offered for sale or lease.
- (b) After correction by the distributor or dealer of the failure to conform or imminent safety hazard, the corrected manufactured home may be sold, leased, or offered for sale or lease.
- (c) Distributors and dealers shall maintain complete records of all alterations made under paragraphs (a) and (b) of this section.

Approval for Site Alteration

§ 3282.303 State plan—suggested provisions.

The following are not required to be included in the State plan, but they are urged as necessary to provide full consumer protection and assurances of manufactured home safety:

- (b) Provision of approvals of all alterations made to certified manufactured homes by dealer in the State. Under this program, the State would assure that alterations did not result in the failure of the manufactured home to comply with the standards.

Site Alteration Discussion

- If a State has provisions for approving and inspecting site alterations, those must be followed.
- If the State does not have provisions, then the dealer can make any alterations they want
- If the home is taken out of compliance, it can't be sold until it's corrected.
- In a State without provisions, the dealer only has to keep records of what was done, there are no requirements for reports, letters from the manufacturer, AC letters or even a second opinion.
- As written, the dealer uses his own judgment in determining what is code compliant and what isn't

What is a Non-Conformance?

- As it applies to add-ons, what is a non-conformance?
- Is it a non-conformance to have a garage, carport or awning load-bearing on the manufactured home?
- Is it a non-conformance to have a garage, carport or awning self-supporting and attached to a MH for weatherproofing or aesthetics?

3280 Requirements

§ 3280.305 Structural design requirements.

(a) *General.* Each manufactured home shall be designed and constructed as a completely integrated structure capable of sustaining the design load requirements of this standard, and shall be capable of transmitting these loads to stabilizing devices without exceeding the allowable stresses or deflections. Roof framing shall be securely fastened to wall framing, walls to floor structure, and floor structure to chassis to secure and maintain continuity between the floor and chassis, so as to resist wind overturning, uplift, and sliding as imposed by design loads in this part...

Site Alterations

§ 3285.3 Alterations during initial installation.

...An alteration, .., must not affect the ability of the basic manufactured home to comply with the MHCSS, and the alteration must not impose additional loads to the manufactured home or its foundation, unless the alteration is included in the manufacturer's DAPIA-approved designs and installation instructions, or is designed by a registered professional engineer or architect consistent with the manufacturer's design and that conforms to the requirements of the MHCSS.

Alteration Non-conformance

- If a manufacturer has designs that incorporate a site built element that bears on the MH, you comply with both 3280.305 and 3285.3 ~ no non-conformance.
- If a manufacturer does not have designs for a site built element that bears on the MH, it is the responsibility of others to obtain an engineered design that takes the loads into account ~ no non-conformance.
 - Either way, both are allowed under current rules
 - Site built elements that do not transfer load to the MH and don't bring the home out of compliance, are outside of the standards according to 3282.8 (slide #2)

Exit Doors Definition

§ 3280.105 Exit facilities; exterior doors.

- (a) *Number and location of exterior doors.* Manufactured homes shall have a minimum of two exterior doors located remote from each other.
- (1) Required egress doors shall not be located in rooms where a lockable interior door must be used in order to exit.
- (2) In order for exit doors to be considered *remote* from each other, they must comply with all of the following:
 - (i) Both of the required doors must not be in the same room or in a group of rooms which are not defined by fixed walls...

Exit Door Discussion

- The HUD code requires two doors, is it a non-conformance to have one of the doors discharge into a garage?
- The HUD code does not define “egress”, “exit” nor does it provide requirements for “discharge”
- Since the exit discharge cannot be controlled by HUD, is it controlled by the States?
- Is this clearly understood and enforced?

CA Example

California Health and Safety Code (HSC) / California Code of Regulations (CCR)

HSC §18213

“Mobilehome accessory building or structure” is any awning, cabana, ramada, storage cabinet, storage building, private garage, carport, fence, windbreak or porch, or any residential building or structure established for the use of the occupant of a manufactured home..

CCR § 1422. Application and Scope

- (a) Except as otherwise noted, the requirements of this article shall apply to the construction, use, maintenance, and occupancy of accessory buildings or structures and building components constructed or installed adjacent to units both within and outside of parks.

CCR § 1429. Required Exits.

- (a) An enclosed accessory building or structure or building component may be constructed or installed to enclose an emergency exit window from a sleeping room within a unit provided the enclosed area adjacent to the emergency exit window has a door not less than twenty-eight (28) inches in width and seventy-four (74) inches in height providing direct access to the outside. The exit doorway from the enclosed accessory building or structure, or building component shall comply with the exit illumination requirements contained in the California Residential Code and lighting outlet requirements contained in the California Electrical code.
- (b) An accessory building or structure which encloses a required exit doorway from an MH-unit shall have an exit path and exit that does not violate the exit facilities requirements for manufactured homes, as contained in the Manufactured Home Construction and Safety Standards, 24CFR, Part 3280.105.

CA example cont..

CCR § 1443. Private Garages and Storage Buildings.

- (a) A private garage or storage building may be located immediately adjacent to a unit if the garage or storage building wall adjacent to the unit is constructed of materials approved for one (1) hour fire-resistant construction. If there are openings which are not one (1) hour fire-rated in the unit wall adjacent to the garage or storage building wall, a minimum of three (3) feet of separation shall be maintained. A minimum of six (6) feet of separation shall be maintained between the unit and a private garage or storage building which does not meet the requirements for one (1) hour fire-resistant construction.

- (b) A three (3) foot separation shall be maintained from a private garage or storage building and any lot line which does not border on a roadway.

- (c) Garages shall be designed and constructed as freestanding structures. They shall not be attached to or supported by an MH-unit; however, to provide a weather seal, flashing or sealing materials may be affixed between the garage and the MH-unit.

OR Example

2010 Oregon Manufactured Dwelling Installation Specialty Code

10-2 Garages.

10-2.1. Garages shall be constructed to the **Oregon Residential Specialty Code** and located according to the plans approved by the building official.

(1) Garages may be attached to the manufactured dwelling with flashing, roofing material, or other sealing materials.

(2) Garages may be permanently attached to a manufactured dwelling when a manufactured dwelling is supported and secured to a foundation wall or basement wall according to the requirements of this code.

10-2.2 Access and Egress. Manufactured dwelling access and egress shall be maintained when a garage is attached to a manufactured dwelling.

(1) When a garage encloses a required egress, as required in **24 CFR 3280 (MHCSS)**, an additional exit door shall be installed in the garage.

(2) At least one required exit door of the manufactured dwelling must open directly to the outside without passing through an accessory building.

WA Example

Washington Administrative Code

296-150M-0410 What are the requirements for altering mobile/manufactured homes?

(4) Additions (i.e., rooms, garages, carports, etc.) added to manufactured/mobile homes.

(a) Labor and industries factory assembled structures section is responsible for any alterations to the manufactured/mobile home. This includes:

(iii) Using the manufactured/mobile home for support of the addition.

(b) A plan review is required when adding an addition to a manufactured/mobile home for:

(ii) Manufactured/mobile homes which use the structure for support of the addition.

(d) Local jurisdiction (city or county) is responsible for the inspection of the addition except as noted above.

(e) Items to pay particular attention to:

(i) If the addition is being served by a required egress door:

- The lock must be removed and nonlocking passage hardware installed or the door may be removed entirely leaving a passageway.

- An exit door equal in size to the one removed must be installed in the addition.

(ii) If the addition is being served by a 3rd door and the other doors meet the egress requirements outlined above, no changes to the exterior door are required.

WA Example, cont.

(5) Attaching awnings and carports and garages.

(c) Manufactured home comes from factory garage ready.

If the manufactured home comes from the factory garage ready, no inspection is required by L&I.

(d) Manufactured/mobile home is not garage ready.

If the manufactured/mobile home is not garage ready when it leaves the factory, an alteration permit is required. Engineering analysis and plan review may also be required if additional loads are placed upon the home or openings are made or changed.

The following are some examples of when a plan review would be required:

- A dormer is added;
- Gypsum board is added to the wall of the home.

Items to also be aware of:

When a garage is to be attached to a manufactured/mobile home, the following must also be considered:

- The means of egress through exterior doors is not compromised (two are required);
- The means of egress from the bedroom(s) is not compromised (one egress directly to the exterior from each); and/or endwalls are usually shearwalls and any additional openings in them will need an engineering analysis and plan review to substantiate.

State Rules Discussion

- The few State examples provided illustrate a few things:
- They show that some States believe they have authority to regulate site built accessory structures
- They show that some States have developed rules to exercise this authority
- Different States have different requirements for egress discharge for both windows and doors.
- The State examples show that there is no consistency regarding exits that discharge into an accessory structure.

State Rules Discussion cont..

CA summary:

- Accessory structures are under CA jurisdiction
- Garages are allowed to be attached but not load bearing
- Accessory structures are allowed to enclose exit windows and exit doors

OR Summary:

- Accessory structures are under OR jurisdiction
- Garages are allowed to be attached, both permanently and for weather proofing
- Allows one exit door from the HUD house to discharge into the garage

WA Summary:

- Accessory structures are under WA jurisdiction
- Has provisions for both load-bearing and non-load bearing accessory structures
- Allows an add-on room to be served by an exit door from the HUD house
- Does not allow an exit door from the HUD house to discharge into the garage if the HUD house only has two exit doors. OK if the HUD house has three exit doors.

Conclusion

- Existing provisions in 3280, 3282 and 3285 allow for non-load bearing, site built add-on structures to be built for manufactured homes without HUD, manufacturer or DAPIA approval.
- Existing provisions in 3285 allow for load-bearing add on structures to be built for manufactured homes without AC letters if the manufacturer provides Dapia approved designs/installation details
- Existing provisions in 3282 and 3285 allow for load-bearing add on structures to be built for manufactured homes without HUD, manufacturer or DAPIA approval if designed by an engineer or architect and compliant with applicable State requirements.
- Existing provisions in 3282 allow for a manufactured home to be taken out of compliance during construction of an add-on or alteration as long as the home is brought back into compliance before sale
- A dealer may make site alterations to a home without approval from the home manufacturer, Dapia or HUD as long as applicable state requirements are met and the home is not taken out of compliance.

Conclusions, cont.

- If the home is code compliant when it leaves the factory, and code compliant when it is sold then there is no justification for an AC letter
- HUD exit doors are intended to provide egress from the HUD home. There is no justification in 3280, 3282, 3285 or statute (U.S.C Title 42, Ch.70) to indicate that HUD exit doors have to discharge to the outdoors. State examples support this position as several states allow for HUD exit doors to discharge into site-built accessory structures.
- There is no justification for the recent HUD position that garages and add-ons take the home out of compliance and that any home prepped to receive a garage or add-on must do so under an AC letter.
- The recent directives by HUD that manufacturers request AC letters for units that may receive a garage or add-on on site is not guidance, it is a departure from existing provisions in 3282 and 3285 and needs to go through proper rulemaking before anything is enforced.

Recommendations

- If HUD wants to regulate add-ons, I recommend that HUD promulgate standards for add-ons as allowed in 3282.8(j)
- If HUD is concerned with proper oversight of site built accessory structures and alterations, I recommend that HUD make 3282.303(b) a mandatory part of the state plan instead of a suggested provision
- If HUD wants all exit doors to discharge to the outdoors, I recommend that HUD develop an interpretative bulletin, revise 3280 and 3285 or enact an emergency rule to this end.
- If HUD is concerned with the dealers ability to determine when a home is taken out of compliance, I recommend that HUD revise 3282.254 to reflect that concern.

Until such a time as these issues go through proper rulemaking, I suggest that HUD:

- Cease any enforcement action by itself, PIA's and IBTS with respect to red-tags on units prepped for add-ons
- Cease any enforcement action by itself, PIA's and IBTS with respect to requiring AC letters for garages
- Send notice to stakeholders that recent memos issued on this subject are suspended until the issues go through the MHCC and proper rulemaking