DOCKET

MHCC MEETING

OCTOBER 23-25, 2012

Arlington, VA

The following items will be the point of, and focus of the main discussions at the meeting. This is not considered an exhaustive list thus additions, revisions and amendments to the items listed are anticipated.

MEETING MINUTES: Review of and motion to approve the draft minutes from the October 2011 MHCC Meeting. See Attachment A.

RECOMMENDATIONS TO HUD: Discussion of form and format of MHCC Actions. See Attachment B.

REVIEW OF OUTSTANDING PROPOSALS: The MHCC has successfully attritioned the majority of outstanding issues in terms of the proposals that have been submitted. Those items still requiring MHCC review, discussion and an action include:

Part 3280

PROPOSAL	PART	TOPIC	SUBCOMMITTEE
LOG # 14	3280.403 (b)	Update AAMA Standard	Structure and Design
LOG #20	3280.403 et.al.	Update AAMA Standard	Structure and Design
LOG # 25	3280.103	IAQ; ASHRAE 62.2	Systems
LOG #30	3280.103	IAQ; ASHRAE 62.2	Systems
LOG #33	3280.103	IAQ; ASHRAE 62.2	Systems
LOG # 36	3280.305	Wind Design	Structure and Design
LOG # 37	3280.306	Wind Design	Structure and Design
LOG # 56	3280.304	Update CPA Standard	Structure and Design
LOG # 59	3280.103	IAQ; ASHRAE 62.2	Systems
LOG # 63	3280.505	Exterior Envelope Penetrations	Systems
LOG # 64	3280.506(b)	Insulation Compression	Systems
LOG # 73	3280.304	Update CPA Standard	Structure and Design
LOG # 77	3280.303	QA Manual	Structure and Design
LOG # 79	3280.304	Vinyl Siding	Structure and Design
LOG # 80	3280.406	Formaldehyde Testing	General and Structure and Design

Part 3282

PROPOSAL	PART	TOPIC	SUBCOMMITTEE
Log # 1	3282.XX	Infrastructure Quality	Regulatory Enforcement

Part 3285

PROPOSAL	PART	TOPIC	SUBCOMMITTEE
LOG # 1	3285 (All)	Alternative Foundation System Testing	Structure and Design
LOG #3	3285.4	Field/Site Verification info for Sprinkler Systems	Structure and Design
LOG # 4	3285.203	Site Drainage	Structure and Design

Some of these items have been reviewed by the subcommittee(s) already but a formal recommendation of the MHCC has not been made. See Attachment C.

UPDATE FROM HUD-OFFICE OF MANUFACTURED HOUSING PROGRAMS. This will be a status report from the OMHP on recent activities. No attachment.

PREVIOUS ACTIONS ON PROPOSALS-INFORMATION ONLY: Update on Excel Tracking Activity and proposals that have been acted on. This is for information purposes only. The latest version of the tracking sheet [See Attachment D-1] and an updated package of completed proposals and actions [See Attachment D-2] is included.

PUBLIC COMMENT PERIODS: Various opportunities will be provided for the public to share their comments and viewpoints with the MHCC. See the agenda for the specific time periods.

ATTACHMENT A

DRAFT MINUTES
MANUFACTURED HOUSING CONSENSUS COMMITTEE
October 19-20, 2011
Sheraton Suites Alexandria
Alexandria, Virginia

WEDNESDAY, OCTOBER 19, 2011

CALL TO ORDER AND ADMINISTRATIVE

Chairman Weinert called the meeting to order at 9:00 a.m.

James Everett, Designated Federal Officer (DFO), welcomed everyone and announced that this is a meeting of the Manufactured Housing Consensus Committee, a Federal Advisory Committee. He noted that notice of the meeting had been published in the October 7, 2011 Federal Register. He noted that the agenda provided time for public comment on each day of the meeting—the 19th and the 20th.. He indicated that a hearing approach will be used for the Special Session/Public Forum on residential sprinklers.

Mr. Solomon, representing the Administering Organization (AO) requested attendees to turn off cell phones or put them on vibrate as a courtesy to speakers and the Committee. He asked members to focus on the topics before the Committee and not into extraneous matters. He asked that side conversations be carried on outside the meeting room. He stated that during MHCC meeting sessions only MHCC members, HUD staff, and AO staff are permitted to speak. Public comments are restricted to the public comment periods.

Mr. Toner called the roll. A quorum was present.

A motion was made and seconded to approve the minutes of the July 20, 2011 MHCC conference call. Mr. Walter noted that the minutes should state that Log 76 (p2 of minutes) ..."is still tabled by the Full MHCC"… That change being noted, the minutes were approved.

HUD MANUFACTURED HOUSING PROGRAM REPORT

Mr. Czauski, Acting Deputy Administrator, welcomed the attendees. He noted that there have been a lot of changes in personnel within HUD and within the industry. He noted the Subcommittees are working well and the MHCC meetings have been very effective, which is good for HUD and good for the industry.

Mr. Czauski reported that HUD has not yet issued a position on preemption although the issue has not been overlooked or relegated to a backburner. He did note that preemption is a legal issue not a standards issue. MHCC's objective is to develop standards; preemption is only a small part of MHCC issues. Regardless, HUD is looking at the issue. In the past, if there were a standard, it was preemptive; if there was no standard, local jurisdictions were free to do as they chose. He noted that if, for example, sprinklers were required by a local jurisdiction or desired by a consumer, it would be good to have a uniform, consistent standard for use in those situations regardless of whether it was preemptive. He encouraged the Committee to continue move forward with its consideration of a standard.

Mr. Czauski reported that he had met with three regional State Administering Agency (SAA) groups. Issues discussed were funding for State Agencies, better communication with the MHCC, Manufactured Housing Institute (MHI) and Manufactured Housing Association for Regulatory Reform (MHARR); assistance with financing issues with the Federal Housing Administration (FHA) and Government National Mortgage Association (GNMA). Discussions with SAAs will continue.

Lastly, Mr. Czauski stated that the personnel changes have not reduced HUD's ability to work on issues. He noted that his door is open and his phone number is published.

Mr. Lubliner said that he had asked Ms. Payne and Ms. Cocke if MHCC meetings and Council of State Administering Agency (COSAA) meetings could be scheduled together so the there was more interaction between the two groups, particularly the MHCC consumer members. Mr. Czauski stated that COSAA is concerned with issues common to SAAs, for example, a common data base, and interaction with neighboring states that have no SAA. He noted that the current down economy is squeezing state budgets and SAAs are feeling the pinch. All that being said, he noted that while dialog is important and encouraged, it is a very people intensive activity.

Mr. Weinert noted that COSAA is for SAAs to discuss issues that cross state lines. He stated that it is incumbent on COSAA to contact the MHCC if there are issues to be discussed. Mr. Anderson asked why consumers have not been invited to meetings with COSAA or GNMA or FHA where consumer issues have been discussed whereas MHI and MHARR have been. Mr. Czauski indicated that COSAA is an opportunity for SAAs to share common interests, particularly in how to carry out their responsibilities to HUD. The meetings with FHA and GNMA were to respond to particular issues regarding financing.

Ms. Dickens noted that at a prior meeting during the public comment period a member of the public had raised a concern about air intakes being located too close to combustion air exhausts. It was noted that the issue was addressed by the MHCC and a recommendation has been made to HUD. Mr. Mendlen indicated that this particular MHCC recommendation is in the 3rd set of standards changes now being prepared as a proposed rule for public comment. Mr. Lubliner stated that he is concerned that there is no timeline for publication of the 3rd set of standards. He noted that there is a provision on testing duct tightness that is also in the 3rd set. Mr. Tompos noted that the majority of manufacturers are already doing duct tightness testing. Mr. Czauski noted that there is a process that must be followed by all Federal agencies to issue regulations.

He assured the Committee that the 3rd set of standards has not fallen off the table; however, there is no shortage of issues before HUD.

Ms. Desfosses noted that it is sad to see that much of the Committee discussions seem to be adversarial, less collegial.

Mr. Stamer indicated that he has heard that there would not be a presentation by National Association of Homebuilders (NAHB) during the public forum on residential sprinklers although on the July 20 conference call the NAHB representative indicated he would make a presentation. Mr. Solomon noted that the NAHB representative recently indicated that he had developed a conflict and could not attend. Regardless, Mr. Solomon noted that he did send the meeting information to NAHB, as well as to MHI and MHARR as they had expressed an interest in making a presentation.

SPECIAL SESSION/PUBLIC FORUM – RESIDENTIAL SPRINKLERS

Mr. Solomon indicated that there are eight speakers registered to make a presentation on the issue, therefore each speaker would be allotted fifteen minutes. The order of presentations would alternate between supporter and opponent. (Speaker presentations, when available are posted on the MHCC website)

Tony Baker, International Association of Fire Chiefs (IAFC)
Mr. Baker spoke in favor of sprinklers being installed in all new construction. He read his prepared presentation. During his presentation he referenced NFPA fire statistics on fire deaths in manufactured homes. Mr. Santana noted that the NFPA report has recently been corrected to indicate that the fire death rate in manufactured homes is comparable to that in site built homes. Mr. Poggione asked if Mr. Baker was familiar with the sprinkler proposal being considered by the MHCC. Mr. Baker was not.

Larry Brown, National Association of Home Builders (NAHB)
Mr. Brown spoke against a mandatory requirement for residential sprinklers. In response to a question he noted that fire insurance premiums are typically reduced about 7% when sprinklers are present. He did note, however, that there might be an increase in premium to cover potential water damage. Mr. Weinert noted that there is a homeowner maintenance issue with smoke detectors; he asked if there were maintenance issues with residential sprinklers. Mr. Brown indicated that most systems are self-contained. He indicated that NAHB believes that it should be up to the homeowner to decide whether sprinklers should be installed. Ms. Desfosses noted that residential sprinklers are not designed to extinguish fires but rather allow time for the occupants to escape. It was noted that smoke detectors save lives in 99.5% of fires. Mr. Brown noted that sprinklers increase survival by about 1%. It was also noted that how long sprinklers operate depends on the system.

Tim Travers, National Fire Protection Association (NFPA)
Mr. Travers stated that he is an advocate for installing sprinklers in all new residences. He noted that he thought the previous day's Subcommittee discussion was on the right track. In response to some earlier comments, he noted that NFPA 13D, Standard for the Installation of Sprinkler

Systems in One and Two Family Dwellings was a life safety standard, not a property protection standard. Maintenance is addressed in the appendix to the Standard.

Lois Starkey, Manufactured Housing Institute (MHI)
Ms. Starkey noted that the MHI position is well known. MHI is in favor of a single standard that could be used where a manufacturer, consumer or local jurisdiction wants a sprinkler system installed. She noted that the manufactured housing industry takes fire safety very seriously, noting the many fire safety provisions in the existing code. MHI applauds the NFPA smoke alarm education program, noting that smoke alarms do save lives.

Ms. Starkey noted that MHI has worked with the MHCC Technical Structure and Design Subcommittee on the draft standard. Mr. Freeborne asked if manufacturers are proactive in providing sprinklers. Ms. Starkey indicated that 100% of manufacturers provide the option but she does not know how proactive they are in their use. Mr. Lubliner asked if there is any data on cost savings manufacturers might obtain if there were a sprinkler standard. Ms. Starkey stated that she did not have any. She also noted that the draft proposed standard does not address water supply issues.

Mr. King noted that manufactured homes have the same flame spread requirements as site built homes. He also noted that the HUD code requires a smoke detector in the cooking area.

Mr. Weinert indicated that the California State Fire Marshal has issued a bulletin on antifreeze in sprinkler systems.

Mr. Lubliner asked whether negative labeling has been considered. Ms. Starkey indicated that it has not been.

Paul Emrath, NAHB Economist
Mr. Emrath noted that the Fire Protection Research Foundation had conducted a cost assessment of home fire sprinklers. He noted that the insurance premium reduction for sprinklers is about 7%. He noted that there are substantial upfront costs; the benefits are in saved lives. The average builders' cost per square foot for a 4000 sqft home was $1.61with an average 16% upcharge. He suggested that there should be incentives for installing sprinklers. Mr. Jewell noted that if there were a 50% savings for manufacturers with an established standard that would be quite a savings over the $1.61/sqft cost. Ms Desfosses noted that the $1.61 did not include site costs. Mr. Weinert indicated that most California manufacturers reported costs of $3000 -$5000. Mr. Emrath noted that NAHB has conducted a consumer survey to be released at the NAHB Builders Show that included questions on sprinklers

Tinamarie Smith, Maine Manufactured Housing Board
Ms. Smith said she was neither for nor against sprinklers. She reported that she had installed sprinklers in two homes; one installation cost $8700, the other $9200. Both were required by the local jurisdiction or insurance because of the distance the local fire service would have to travel to the sites. Both installations had back-up generators, the cost of which was included.

Mark Weiss, Manufactured Housing Association for Regulatory Reform (MHARR)

Mr. Weiss stated that MHARR was opposed to any sprinkler requirement, voluntary or otherwise. He noted that manufactured homes provide reasonable safety and the data bears this out. He noted that the USFA statistics indicate that the HUD code has had a positive impact. The current standards work. Putting a voluntary standard in the HUD code would open the door for sprinkler advocates to press for a mandatory requirement. He stated that the current standards provide reasonable fire safety and because they do the HUD code should preempt attempts to require them.

Marty Ahrens, NFPA

Ms. Ahrens presented the analysis in the July 2011 NFPA Manufactured Home Fires report, as corrected. She noted that the trend shows the positive impact the 1974 HUD code has had on manufactured home fire statistics. Manufactured homes built after the introduction of the HUD standards have lower rates of civilian deaths per hundred reported fires than those built before the HUD standards were introduced. She reported that an errata stating that the fire death rate in post HUD code manufactured homes would be comparable to the death rate in other one-or-two family homes was issued for the initial report. The AO was asked to attach the errata to the minutes. (Ed. note – Errata was distributed to the members on 10/19/11)

HUD Observation on Public Forum

Mr. Czauski noted that HUD recognizes the MHCC as a very important group for HUD with its varied but balanced membership. HUD values MHCC guidance. He noted that in the public forum and in the previous day's Subcommittee meeting a lot of points of view were heard and vetted at length and HUD will not ignore the discussions.

BREAK

The Committee recessed at 12:30 p.m. and reconvened at 1:30 p.m.

Chairman Weinert asked the Subcommittee Chairs if they had items that needed further Subcommittee discussion. The Technical Structure and Design had two items that were not addressed at yesterday's Subcommittee meeting; the Technical Systems also had items that were not addressed at yesterday's Subcommittee meeting. Both Regulatory Enforcement and General Subcommittees indicated that did not need more time. The General Subcommittee will have four items for the MHCC to vote on.

The Committee recessed for the Subcommittees to meet.

The Committee reconvened at 4:00 p.m.

SUBCOMMITTEE RECAPS

Technical Structures and Design Subcommittee

Log 14 (Update to AAMA Window Standards) - Chairman Tompos reported that new information has been received regarding Log 14, updating the reference standard AAMA 1701.2-1985 to the 2002 edition. Additional requirements have been added in the 2008 edition. In addition, he noted

that there was a similar proposal, Log 20 (Update to AAMA Window/Door Standards), which had been assigned to the Technical Systems subcommittee. He moved that both Logs be addressed by the Technical Systems Subcommittee. Motion seconded and carried by the MHCC, one opposed...

Log 55 (Update to newer ANSI Standards) – The Subcommittee recommends that Log 55 be accepted to update the reference to ANSI 208.1-1989 to the 1999 edition.

Logs 73 and 56 (Both Items: Update to newer ANSI Standards) - Chairman Tompos noted that Log 73 updates the reference to ANSI 208.1 to the 2009 edition. The 2009 edition contains a requirement for formaldehyde. Log 56 would add the standard, ANSI 208.2-2002, on medium density fiberboard. It also contains a formaldehyde requirement.

Wind Task Force

Mr. Wade gave a brief history and update on the status of the Wind Task Force. He noted that the wind zone charts are still being revised. Some regions will be in a higher wind zone than previously which will involve redesign and testing. Cost data is still being developed although lot has already been developed. Mr. Mazz asked how design and testing costs are amortized. Mr. Wade indicated that they are usually absorbed. Mr. Walter asked what design documents were being used by the Task Force. Mr. Wade indicated that ASC 7 was the base document. Mr. Mendlen noted that the approach is to use 3-second wind gust data rather than fastest speed. He noted that wind zones 2 and 3 are similar to the current zones. Mr. King asked whether the wind zone for Long Island, NY had been changed and, if so, what data supports such a change. Without data he could not support the change. Mr. Mendlen noted that wind speed records have changed therefore the mapping has changed although he is not sure about Long Island. Mr. Santana noted that the Task Force has struggled between science and current practice. Mr. Wade indicated that the Task Force will develop new cost data and come back to the Committee.

General Subcommittee

Mr. Mazz reported that the Subcommittee has considered four proposals.

Log 3 (width of door) and 2 (width of hallway) – Mr. Poggione submitted cost information on 36" wide doors. Mr. Jewell submitted written comments on Log 2 and 3. Mr. King reported that he had received 5 plans for 14'wide homes from two manufacturers that had 36" wide doorways. The discussion continued on Log 2 on hallway width. Mr. King stated that the emotions should be taken out of the discussion and the issue should be viewed as addressing egress. Mr. Tompos stated that he has reviewed two plans where it is not possible to have 30" hallways.

Log 10 (ceiling height) – Mr. Mazz stated that the Subcommittee recommends that Log 10 be rejected as it doesn't add anything to the code. Motion to reject Log 3 seconded and passed unanimously.

Log 11(exterior door width) – Mr. Mazz stated that the Subcommittee recommends that Log 11 be rejected as it is not necessary given the action on Log 3. Motion to reject Log 11 seconded and carried unanimously.

PUBLIC COMMENT

Vinyl Siding Institute (VSI)
Mark Heath, representing VSI, made an informational, heads-up presentation on certification programs for vinyl siding and polypropylene siding. He has submitted a change for recognition of the programs. He noted that the IRC recognized the vinyl siding program in 2006. The polypropylene siding program will come up in 2012. Mr. Lubliner asked if the products could be applied over foam backing. Mr. Heath indicated that they could.

MHARR
Mark Weiss spoke on the accessibility issue noting the earlier discussion. He noted Mr. Tompos' remark regarding the inability of certain designs to have wider hallways which would remove certain designs from the market. He also expressed a concern that the door and hallway provisions would lead to other proposals to impose accessibility requirements in manufactured homes.

DOOR AND HALLWAY WIDTHS
Heather Ansley, representing the Consortium for Citizens with Disabilities, spoke in favor of Log 3; one 32" wide entry door is the minimum for wheelchair access. She said the 30" wide hallway in Log 2 is significantly short of the minimum width for wheelchair access. She stated the Consortium recommends a minimum width of 36" for hallways.

The Paralyzed Veterans of America submitted a written statement urging the MHCC to adopt a minimum hallway width of 36".

The American Association of People with Disabilities submitted testimony supporting the 32" wide doorway requirement but recommended a 36" wide hallway requirement for homes wider than 14'.

Lois Starkey, MHI, supported a standard of wider doors and hallways based on egress. She stated that accessibility features should be voluntary.

RECESS
Chairman Weinert announced that the Committee would reconvene at 9:00 a.m. The Committee recessed for the day at 5:20 p.m.

THURSDAY, OCTOBER 20, 2011

The Committee reconvened at 9:00 a.m. Mr. Toner called the roll. A quorum was present.

MHCC ACTIONS/RECOMMENDATIONS

General Subcommittee

Mr. Mazz reported that the Subcommittee has recommendations on 4 Logs

Log 3(width of door) – Mr. Mazz stated that the Subcommittee recommends that Log 3 be accepted in principle to read "all exterior doors shall have a minimum clear opening of 32 in". Mr. Anderson moved that the Subcommittee recommendation be accepted. Motion seconded. Mr. Santana noted that MHIA 2000 "Findings and Purposes" section does not address accessibility. The ICC codes do not address accessibility. He is concerned that this change would set a precedent for introducing other accessibility requirements into the code. Mr. Mazz noted that accessibility is much more than door width. Mr. Anderson noted that door width is also a safety issue for seniors. Mr. Walter suggested that the proposal be limited to the main door. Mr. Legault agreed with Mr. Santana. Ms. Dickens noted that many residents use the back door as their principal entrance. Ms. Nelson notes that many homeowners are staying in their homes longer.

Motion to call the question seconded and carried. Motion to accept log 3 in principle passed 19 in favor, 1 opposed. See action on Log #3.
Log 10 – Mr. Mazz stated that the Subcommittee recommends that Log 10 be rejected as it doesn't add anything to the code. Motion to reject Log #10 seconded and passed one opposed. See action on Log #10.

Log 11 – Mr. Mazz stated that the Subcommittee recommends that Log 11 be rejected as it is not necessary given the action on Log 3. Motion to reject Log 11 seconded and carried unanimously.

Log 2 (width of hallway) – Mr. Mazz stated that the Subcommittee recommends that Log 2 be accepted in principle to read "Hallways for homes 14' wide, as measured from exterior wall to exterior wall, or larger shall have a minimum horizontal dimension of 30 inches (762 mm) measured from the interior finished surface to the opposite wall". The change would facilitate egress. Motion to accept Subcommittee recommendation seconded. Mr. Santana asked what the substantiation was for 30" versus 28" or 32". Mr. King noted that requirement will eliminate many homes; many 14' homes are not actually 14' wide.

Mr. Jewell moved, Mr. Anderson seconding, that the proposal be amended to add "hallways in multi-section homes have a minimum distance of 36" from …opposite wall". Mr. Stamer noted that the Subcommittee recommendation was approved by a vote of 8-1-1. This additional requirement was never discussed. Ms. Desfosses noted that the proposal was thoroughly vetted by the Subcommittee. Mr. Santana warned against unintended consequences. Mr. Poggione noted that the Subcommittee had done a lot of research on the issue. He expressed a concern that the MHCC was redoing the Subcommittee's work. Mr. Weinert noted that it was not unusual for a Committee to change a Subcommittee's recommendation. Vote on amendment failed - 10 in favor, 10 opposed. Mr. Jewell requested a roll call vote on the main motion. Motion to accept Log 2 in principle carried, 15 in favor, 5 opposed. Mr. Stamer asked if there would be a letter ballot on this change. Mr. Solomon stated that there would be a letter ballot and members could include a comment if they wanted. Mr. Lubliner asked if a vote could be changed. Mr. Solomon indicated that votes could be changed.

<u>Technical Structures and Design Subcommittee</u>

Sprinklers – Mr. Anderson moved that the sprinkler issue, tabled at the October 2010 meeting, be taken off the table. Motion seconded and carried, 17 in favor, 3 opposed.

Mr. Anderson moved that the Subcommittee proposal dated October 18, 2011 be accepted. See Log# 76. Motion seconded. Mr. Tompos stated he found the proposal problematic. It opens the door to discriminating against manufactured homes. He noted that the NFPA data shows the death rate in manufactured homes is similar to that in site built homes, injuries are lower and the occurrence of fires is lower. He attributed this to the fact that manufactured homes have more fire safety provision than site built.

Mr. Tompos noted that the HUD standard requires a flame spread of 25 or less in water heater and furnace compartments, a flame spread of 50 or less on the wall behind the range, a flame spread of 75 or less on the ceilings, a flame spread of 25 or less to protect the bottoms and side of kitchen cabinets around the range, additional protection of cabinets above the range, trim larger than 6" to meet flame spread requirements, and, smoke detectors in the general living area. Mr. Tompos noted that the IRC has none of these requirements. In addition the HUD code requires 2 exterior doors. The IRC requires only 1. The HUD code also requires bedroom doors to be within 35 feet of an exterior door.

Ms. Dickens stated that it is a reasonable compromise to allow the consumer a choice if HUD does not preempt sprinklers. Mr. Luttich noted that it is good to have a universal standard; otherwise 50 states could have different requirements.

Mr. Walter moved that the proposal be amended to delete “or when a state or local authority having jurisdiction … detached single-family dwelling”. Motion seconded.

Mr. Santana concurred with Mr. Tompos’ comment. He supported Mr. Walter’s motion

Mr. Lubliner stated preemption is better for consumer protection so that all codes apply equally.

Mr. Anderson stated that he is tired of the industry paranoia. He stated that it is better to have something in place.

Ms. Nelson stated that it is better for consumer protection to have an across-the-board standard.

Ms. Desfosses stated that she has personally experienced discrimination against manufactured homes. She noted that unnecessarily increasing the cost on manufactured homes could lead to increased homelessness.

Mr. Sheahan expressed a concern about compliance with maintenance requirements. He wants to see more emphasis on maintenance on smoke detectors. In response Mr. Freeborne stated that on-site fire suppression would be more effective.

Mr. Rust stated that the economies of scale would drive down costs. In rural settings sprinklers make sense.

Mr. Walter noted that the proposal addresses two issues, first preemption, which is a HUD issue; the second is to standardize the installation of sprinklers.

Mr. Legault stated that the foundation of the HUD code is preemption. He also stated that he could not support the change if it contains mention of the local authority having jurisdiction. Mr. Poggione concurred.

Motion to call the question seconded and carried – 17 in favor, 2 opposed, 1 abstain.

Mr. Stamer requested a roll call vote.

The amended motion was passed 14 in favor, 5 opposed, 1 abstain.

The entirety of the proposal is shown in the committee action for Log #76. The change made by the MHCC as a result of this deliberation is limited to Section 3280.210 as follows:

§3280.210 Fire Sprinkler Requirements.

(*a)* General. (1) Fire Sprinkler systems are not required by this subpart; however, when a manufacturer installs a fire sprinkler system , this section establishes the requirements for the installation of a fire sprinkler system in a manufactured home. (2) This section applies to both stand-alone and multipurpose sprinkler systems that do not include the use of antifreeze. (3) A back-flow preventer is not required to separate a stand-alone sprinkler system from the water distribution system.

Ms. Desfosses requested that the proposal go to letter ballot; Ms. Dickens seconded. Motion failed, only 4 in favor.

Log 2 (Part 3285.112 Site Work) – Mr. Tompos reported that the Subcommittee recommends Log 2, drainage, as amended by the Subcommittee to accommodate lots that do not have the 10' minimum, be accepted. Ms. Desfosses noted that manufactured homes do not have property lines. Motion to accept the Subcommittee recommendation seconded and carried 19 in favor, none opposed.

Log 15 – Mr. Tompos reported that the Subcommittee recommends that Log 15, foundation design, be rejected because it contains no specific recommendation. Motion to reject seconded and carried unanimously.

Log 34 - Mr. Tompos reported that the Subcommittee recommends that Log 34, updating ANSI/HPVA HP-1 to the 2004 edition be accepted. Motion to accept seconded and carried, 16 in favor, 2 abstaining.

Mr. Santana moved that the Subcommittee recommendations to accept Logs 38 – 49, 52, 53, and 54 updating various reference standards be accepted. Motion seconded and carried unanimously.

Log 55 - Mr. Tompos reported that the Subcommittee recommends that Log 55 be accepted as HUD has already made the change. Motion to accept Log 55 seconded and carried unanimously.

Log 56 - Mr. Tompos reported that Log 56 includes a new provision on testing of medium-density fiberboard; the provision is the same as that for particle board. Mr. Legault moved that the proposal be sent back to the Subcommittee for further review. Mr. Lubliner noted that emissions are surface area dependent as well as rate dependent. Motion to return Log 56 back to the Subcommittee seconded and carried - 18 in favor, 2 opposed.

Log 73 - Mr. Tompos reported that new information has been received on Log 73 on particle board. It was noted that Log 73 references the CARB rule on formaldehyde. Motion to return Log 73 to the Subcommittee seconded and carried – 19 in favor, none opposed, 1 abstain.

Log 74 - Mr. Tompos reported that the Subcommittee recommends that Log 74 on thicker gypsum and vinyl be accepted. Motion to accept seconded and carried unanimously.

Log 77 - Mr. Tompos reported that the Subcommittee has tabled the proposal.

Log 78 – Mr. Tompos reported that the Subcommittee recommends that Log 78, dimension lumber moisture content be accepted. Motion seconded. Mr. Poggione noted that he would be more concerned about shrinkage. Mr. Stamer moved that the proposal be sent back to the Subcommittee for further study. Motion seconded. Motion failed 5 in favor, 14 opposed. Motion to accept Log 78 approved - 14 in favor, 3 opposed, 3 abstaining.

Technical Systems Subcommittee

Log 18 - Mr. Luttich reported that the Subcommittee recommended that Log 18, branch circuits, be rejected as it was similar to Logs 4 and 19. Motion to reject seconded and carried – 18 in favor, none opposed.

Log 20, 25, 30 and 59 – have been assigned to Task Forces for study.

Log 63 – Mr. Luttich reported that the Subcommittee recommended that Log 63, air leakage control, be rejected as it is a DOE issue. Motion to reject seconded. Mr. Lubliner noted that a speaker from DOE had addressed the MHCC at a prior meeting. Mr. Stamer stated that the presentation was not informative as to the substance of a proposed regulation. Motion to reject failed - 12 in favor; 4 opposed. A Motion to table the proposal until there is some action by DOE seconded and carried -16 in favor, 2 opposed, 1 abstention.

Log 64 – Mr. Luttich reported that the Subcommittee recommends Log 64, updating reference standard ANSI A135 to the 2006 edition, be rejected. It was moved and seconded that the proposal be tabled until DOE takes some action. Mr. Walter stated that the proposal should be rejected. Motion to table Log 64 passed, 13 in favor, 5 opposed.

Log 71 – The Subcommittee recommends Log 71 on tankless water heaters be accepted. Motion to accept Log 71 seconded and passed unanimously, however, it was noted that the Subcommittee had not reviewed the reference standards.

Regulatory Enforcement Subcommittee

Mr. Wade reported that the Regulatory Subcommittee had nothing that required action.

PUBLIC COMMENT

There were no public comments.

CLOSING ANNOUNCEMENTS

Chairman Weinert thanked the Committee for its good work. A lot of issues were worked through.

Mr. Tompos moved that the AO only accept proposals that were in underline/strikeout format. Motion seconded. Mr. Stamer moved that the motion be amended to state that proposals include best guess cost information and logic for the proposals. Mr. Jewell stated that it is difficult for consumers to develop cost information. Mr. Lubliner noted that there are two types of costs – transitional and amortized. The "cost per house" should be considered.

Mr. Solomon stated that he would not reject proposals that were not in legislative format unless he was directed to do so by HUD.

Mr. Czauski stated that including cost information might make the process more efficient. HUD will get cost questions from OMB so HUD will have to develop cost information. Mr. Poggione noted that it should be clear to the proposer a cost statement is needed. Ms. Dickens noted that the MHCC does not want to discourage consumers from making proposals. Mr. Anderson noted that consumers can do some research on costs. Mr. Walter noted all the work the Wind Task Force is doing to develop cost information. Mr. Stamer withdrew his amendment but wanted the record to show the need for cost information. Mr. Czauski indicated that perhaps support could be provided to the AO to develop cost information.

The motion to require underline/strikeout format in proposals passed.

Mr. Tompos moved that the AO provide online access to the proposal tracking log. Motion seconded and passed unanimously.

Ms. Dickens moved that "Technical" be dropped from the name of the Technical Structure and Design Subcommittee and the Technical Systems Subcommittee. Motion seconded and carried 19 in favor, one opposed.

Mr. Lubliner noted that there had been a recall of Coleman heaters and expressed an interest what action has been taken as a result. Mr. King stated that it is not in the purview of the Committee. Mr. Wade agreed.

Mr. Everett noted that the calendar for next year has not been developed yet. He noted that the intent is still to have meetings/conference calls on a quarterly basis.

Mr. Jewell stated that this is the end of his 3-year term and he would not be returning. He wished the Committee continued success.

Mr. Czauski congratulated the Committee for an effective and efficient meeting. He also noted that HUD is always interested in receiving applications for participation on the MHCC.

Mr. Weinert noted that his term as Chair expires. He is willing to continue as Chair but believes the Committee should vote on it. A question was raised regarding members' terms. Mr. Solomon indicated that the last update was sent out after the March meeting. He will send an update.

ADJOURNMENT

It was moved and seconded that the Committee adjourn.

The Committee adjourned at 12:55 p.m.

HUD MANUFACTURED HOUSING CONSENSUS COMMITTEE
ATTENDANCE SHEET
FULL COMMITTEE MEETING, ALEXANDRIA, VA
OCTOBER 19-20, 2011

STATUS: M=MEMBER; NVM=NON VOTING MEMBER; AO= ADMINISTERING ORGANIZATION
SEC=SECRETARY

NAME	STATUS	ORGANIZATION	Wednesday October 19th	Thursday October 20th
Weinert, Richard	M	State of California	X	X
Anderson, Steven	M	Salt Lake County Assessor	X	X
Czauski, Henry	NVM	US Department of Housing & Urban Development	X	X
Desfosses, Theresa	M	State Manufactured Homes, Inc.	X	X
Dickens, Ishbel	M	MHOAA	X	X
Freeborne, William	M	Retired	X	X
Jewell, Kevin	M	Texas Low Income Housing Information Service	X	X
King, Timothy	M	New York State Department	X	X
Legault, Jeffrey	M	Skyline Corporation	X	X
Lubliner, Michael	M	Washington State University	X	X
Luttich, Mark	M	Nebraska Public Service Commission	X	X
Mazz, Mark	M	Architect	X	X
Nelson, Terry	M	Manufactured Home Owners Assn. of Illinois	X	X
Poggione, Leo	M	Craftsman Homes	X	X
Rust, Adam	M	Community Reinvestment Assn. of North Carolina	X	X
Santana, Manuel	M	Cavco Industries	X	X
Sheahan, Timothy	M	GSMOL/V.P. MHOAA	X	X
Stamer, William	M	Champion Home Builders, Inc.	X	X
Tompos, David	M	NTA, Inc.	X	X
Wade, Michael	M	Cavalier Home Builders, Inc.	X	X
Walter, Frank	M	Consulting Civil Engineer	X	X
Solomon, Robert	AO	National Fire Protection Association	X	X
Toner, Hugh Patrick	AO/SEC		X	X

HUD MANUFACTURED CONSENSUS COMMITTEE
MEMBERS NOT PRESENT
ARLINGTON, VA
OCTOBER 19-20, 2011

NAME	ORGANIZATION
Scott, Gregory	ScotBilt Homes, Inc.

HUD MANUFACTURED CONSENSUS COMMITTEE
GUEST ATTENDANCE SHEET
FULL COMMITTEE MEETING, ALEXANDRIA, VA
OCTOBER 19-20, 2011

NAME	ORGANIZATION	ATTENDANCE
Bers, Eric L.	HUD	X
Everett, James	HUD	X
Ferrante, Vic	HUD	X
Mendlen, Rick	HUD	X
Payne, Teresa	HUD	X
Aherns, Marty	NFPA	X
Travers, Tim	NFPA	X
Brown, Larry	NAHB	X
Emrath, Paul	NAHB	X
Weiss, Mark	MHARR	X
Starkey, Lois	Manufactured Housing Institute	X
Dobson, Matt	VSI	X
Smith, Tinamarie	Maine Manufactured Housing Association	X
Nebbia, Joe	Newport Partners	X

ATTACHMENT B

RESERVED

ATTACHMENT C1

3280HUD- Log #14 Final Action:
(3280.403(b), 404 (b) and 405 (b))

Submitter: Thomas Shuping, Fortifiber Building Systems Group
Recommendation: Change all references to AAMA Standard 1701.2-1985, to AAMA Standard 1701.2-2002.
Substantiation: This change will keep the HUD Code in line with AAMA's most current update as NFPA 501-2003, as already done.

I am forwarding to you copies of the ICC Public Hearing from September 2003, pages 90 and 91. They are the reasons why the IRC is changing the installation requirements for windows and doors. ASTM E 2112-01 mirrors AAMA-1701.1-02. The cost to flash windows and doors would range between $0.80 and $1.11 per window. Some mobile home manufacturers currently use some flashings.

Note: Supporting material is available for review at NFPA Headquarters.

3280HUD- Log #20 Final Action:
(3280.403, 3280.404, 3280.405, and 3280.508(e))

Submitter: Mark A. Nunn, Manufactured Housing Institute

Recommendation: Revise various subparagraphs of 3280.403, 3280.404, 3280.405, and 3280.508(e) to read as follows:

3280.403(b) Standard. All primary windows and sliding glass doors shall comply with AAMA Standard ~~1701.2 1985~~ 1701.2-2002, ~~Primary Window and Sliding Glass Door~~ Voluntary Standard for Utilization in Manufactured Housing for Primary Windows and Sliding Glass Doors, except that by January 17, 1995, the exterior and interior pressure tests shall be conducted at the design wind loads required for components and cladding specified in 3280.305(c)(1).

3280.403(e) Certification. All primary windows and sliding glass doors to be installed in manufactured housing shall be certified as complying with AAMA Standard ~~1701.2 1985~~ 1701.2-2002. As of January 17, 1995, this certification must be based on tests conducted at the design wind loads specified in 3280.305(c)(1).

3280.404(b) Performance. Egress windows including auxiliary frames and seals, if any, shall meet all requirements of AAMA Standard ~~1701.2 1985~~ 1701.2-2002, ~~Primary Window and Sliding Glass Door~~ Voluntary Standard for Utilization in Manufactured Housing for Primary Windows and Sliding Glass Doors and AAMA Standard ~~1704 1985~~ 1704-2001, Voluntary Standard Egress Window Systems for Utilization in Manufactured Hosing, except that by January 17, 1995, the exterior and interior pressure tests for components and cladding shall be conducted at the design wind loads required by 3280.305(c)(1).

3280.404(e) Certification of Egress Windows and Devices. Egress windows and devices shall be listed in accordance with the procedures and requirements of AAMA Standard ~~1704 1985~~ 1704-2001. As of January 17, 1995, this certification must be based on tests conducted at the design wind loads specified in 3280.305(c)(1).

3280.405(e)(2) In determining certifiability of the products, an independent quality assurance agency shall conduct preproduction specimen tests in accordance with AAMA ~~1701.2 1985~~ 1701.2-2002. Further, such agency shall inspect the product manufacturer's facility at least twice per year.

3280.508(e) U-values for any glazing (e.g., windows, skylights, and the glazed portions of any door) shall be based on tests using AAMA 1503.1-1988, Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections or the National Fenestration Rating Council (NFRC) 100 (~~1997~~ 2002 edition), Procedures for Determining Fenestration Product Thermal Properties. In the absence of tests, manufacturers shall use the residential window U-values contained in Chapter 29, Table 5 of the 1997 ASHRAE Handbook of Fundamentals. In the event that the classification of the window type is indeterminate, the manufacturer shall use the classification that gives the higher U-value. Where a composite of materials from two different product types are used, the product shall be assigned the higher U-value. For the purposes of calculating U_o values, storm windows shall be treated as an additional pane.

Substantiation: The Manufactured Housing Consensus Committee (MHCC) has approved three segmental standards ballots for updating the federal HUD Code at 24 CFR 3280. Segmental ballots #2 and #3 included suggested updates of AAMA Standards 1701.2 and 1704 to more current year editions than that found in the HUD Code. The HUD Code currently references the 1985 edition of each standard.

Segmental ballot #2 updated AAMA 1701.2 to the 1995 edition. Segmental ballot #3 updated AAMA 1701.2 (again) to the 2000 edition, while AAMA 1704 was updated to the 2001 edition. Even though the MHCC segmental ballot #3 updated AAMA 1704 to the most current edition available, this suggested change repeats the MHCC approved change in two sections above.

The NFRC 100 Standard is for determination of window and door U-values. This NFRC Standard is a new reference standard that has been proposed for inclusion in the HUD Code by proposed rule making issued on December 1, 2004 at 69 CFR 70015. At the time of this MHI proposal, the final rule on the HUD Code revisions noticed at 69 CFR 70015 had not been published.

The NFRC 100 Standard has not been proposed to be updated to the latest year edition (2002) by the subsequent MHCC segmental ballots. This 2002 edition is also not included in the NFPA 501-2005 standard. The NFRC 100-2002 version was finalized midway through the NFPA 2005 revision process and could not be submitted for consideration.

It is imperative that window and sliding glass door test/certification standards be updated to the current year editions. Suppliers of these products are testing to the new standards even though the HUD Code has lagged behind in keeping reference standards up-to-date. Many suppliers of manufactured housing products may not even be relying on outdated versions of these AAMA or NFRC standards. Manufacturers have been using these updated AAMA and NFRC standards in their selection of window products for DAPIA design packages (DAPIA have been providing approvals).

While some may suggest that the MHCC first review these three standards changes noted above through the usual

channel (by relying on revisions to the HUD Code based on editions of NFPA 501), the problem lies in the department has not published a proposed rule for MHCC Segmental Ballot #2. Segmental Ballot #3 still waits development in draft form. To get these updates to HUD in the quickest manner possible, MHI has taken an initiative to submit these standard updates as a separate change for MHCC consideration. It is not known at this time when the MHCC may consider revisions to the HUD Code based on the NFPA 501-2005 edition, which has the same AAMA standards referenced for window and sliding glass doors as this change suggests.

Note: Supporting material is available for review at NFPA Headquarters.

This is not original material; its reference/source is as follows:

AAMA 1701.2-2002, AAMA 1704-2001 and NFRC 100-2002

3280HUD- Log #25 Final Action:
(3280.103)

Submitter: Tom Neltner, National Center for Healthy Housing

Recommendation: Add new paragraph (d) as follows:

(d) The manufactured housing must comply with ANSI/ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings

Substantiation: According to ASHRAE the most effective strategy for minimizing indoor air exposure to pollutants is to prevent them from being released into the air in the first place. The ANSI/ASHRAE standard requires source-control measures that exhaust pollutants from specific rooms before the pollutants enter the rest of the household. In addition, whole-house ventilation brings fresh air into the house, diluting pollutants that are difficult to control at the source. This change will increase the cost of construction. It will result in significantly healthier air for residents of manufactured housing.

3280HUD- Log #30 Final Action:
(3280.103)

Submitter: Tom Neltner, National Center for Healthy Housing

Recommendation: Add new paragraph (d) as follows:

(d) The manufactured housing must comply with ANSI/ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.

Substantiation: Poor indoor air quality is associated with adverse health effects. A consensus industry standard that provides adequate indoor air quality has been established by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE). The most effective method of controlling indoor air exposure to pollutants is to prevent them from being released into the air in the first place and by providing sufficient fresh air. The ASHRAE standard requires source-control measures that exhaust pollutants from specific rooms, such as bathrooms, before the pollutants enter the rest of the house. This change will increase the cost of construction slightly. It will result in significantly healthier air for residents of manufactured housing.

3280HUD- Log #33 Final Action:
(3280.103)

Submitter: Mike Moore, Newport Ventures
Recommendation: Revise entire section as follows:

Sec. 3280.103 Light and ventilation.

(a) Lighting. Each habitable room shall be provided with exterior windows and/or doors having a total glazed area of not less than 8 percent of the gross floor area.

(1) Kitchens, bathrooms, toilets compartments, laundry areas, and utility rooms may be provided with artificial light in place of windows.

(2) Rooms and areas may be combined for the purpose of providing the required natural lighting provided that at least one half of the common wall area is open and unobstructed, and the open area is at least equal to 10 percent of the combined floor area or 25 square feet whichever is greater.

(b) Whole-house ventilation. Each manufactured home must be provided with whole-house ventilation in accordance with ASHRAE Standard 62.2 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.

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

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

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

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

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

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

~~(c) Additional ventilation.~~

~~(1) At least half of the minimum required glazed in paragraph (a) of this section shall be openable directly to the outside of the manufactured home for unobstructed ventilation. These same ventilation requirements apply to rooms combined in accordance with 3280.103(a)(2).~~

~~(2) Kitchens shall be provided with a mechanical ventilation system that is capable of exhausting 100 cfm to the outside of the home. The exhaust fan shall be located as close as possible to the range or cook top, but in no case farther than 10 feet horizontally from the range or cook top.~~

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

Substantiation: Newport Ventures is a building consulting firm that works with manufacturers, associations, and agencies and programs such as U.S. DOE Building America, U.S. HUD's Partnership for Advancing Technology in Housing, and NYSERDA to advance the performance and affordability of homes. As the energy performance of homes continues to improve, the need for mechanical ventilation in site built and manufactured homes has increased. The MHSCC has done well to respond by requiring whole house ventilation systems and also establishing guidelines for the implementation of these systems. To ensure that the MHSCC keeps pace with current consensus-based industry standards, the MHSCC should reference ASHRAE 62.2 for the design and specification of ventilation systems.

Referencing ASHRAE 62.2 for whole house mechanical ventilation would remove confusion caused by some of the current ventilation language and result in the adoption of the most widely recognized single source residential ventilation standards. Within this code change proposal, we have retained those components of the MHSCC that are meritorious but are not addressed within the main body of ASHRAE 62.2. These include air distribution, labeling ventilation controls, and including operational instructions in the user's manual. All other original text o f section 3280.103 that we have recommended be stricken pertains to issues that are already addressed within ASHRAE 62.2. The revisions and insertions made within (b)(2) were done to clarify the intention of this section code as written.

Cost/Benefits: Because whole house ventilation is already requried by MHSCC, no additional costs are expected by requiring that these systems comply with ASHRAE 62.2.

3280HUD- Log #36 Final Action:
(3280.305)

Submitter: David K. Low, D. K. Low & Associates
Recommendation:

Include 3280HUD_L36_R.doc here
(contains 3 tables & Insert lines for 3 pieces of art)

Substantiation: The wind provisions of the MHCSS contained in 24CFR3280 are based on a modified version of ASCE 7-88 Minimum Design Loads for Buildings and Other Structures, a wind standard that is now 20 years old. The contemporary wind standard ASCE/SEI 7-05 Minimum Design Loads for Buildings and Other Structures indicates that high winds extend much further inland than what was considered in 1988. The extension of the high wind regions places HUD homes in areas where design level winds are greater than what homes were designed to resist. Wind analyses completed by Keshor Mehta, PhD, PE determined that during a design event, homes placed near the edge of the existing HUD Zone I will be exposed to wind pressures nearly twice (186%) those for which the homes were designed. This exposes occupants of those homes to greater risk than occupants of homes designed and constructed to contemporary wind codes and standards like the International residential Code IRC-2006 and the International Building Code IBC-2006. The analyses completed for this proposal indicate that even greater increases exist for Components and Cladding.

This proposal will correct the wind design deficiencies that exist in 24 CFR3280 Sections 305 by requiring HUD homes to be constructed to resist wind loads determined by a contemporary wind standard and will update the wind zone county lists to reflect the higher wind speeds that exist inland.

The proposal establishes four winds zones with design 3 second gust wind speeds of 90 mph, 110 mph, 130 mph and 150 mph respectively. The wind zones are identical to those adopted in the 2005 version of NFPA 501, a consensus standard that based on ASCE/SEI 7-02.

Note: Supporting material is available for review at NFPA Headquarters.

Cost/Benefit: A cost benefit analysis has been completed. The cost benefit analysis determined that revisions to the wind speed map are needed and are cost beneficial.

This is not original material; its reference/source is as follows:
NFPA 501 2005 Edition

Code of Federal Regulations
Title 24, Volume 5
Revised as of April 1, 2006

From the U.S. Government Printing Office via GPO Access
[CITE: 24CFR3280.305]

Proposed Revisions to Subpart D Body and Frame Construction Requirements
Sec. 3280.305 Structural design requirements.

* * * * *

(4) Whenever the roof slope does not exceed 20 degrees, the design horizontal wind loads required by Sec. 3280.305(c)(1) may be determined without including the vertical roof projection of the manufactured home. However, regardless of the roof slope of the manufactured home, the vertical roof projection shall be included when determining the wind loading for split level or clerestory-type roof systems.

(c) Wind, snow, and roof loads--(1) Wind loads--design requirements. (i) Standard wind loads (Zone I). When a manufactured home is not designed to resist the wind loads for high wind areas (Zone II, Zone III or Zone ~~III~~IV) specified in paragraph (c)(1)(ii) of this section, the manufactured home and each of its wind resisting parts and portions shall be designed to resist design wind loads for Exposure C specified in ACSE/SEI 7-05, "Minimum Design Loads for Buildings and Other Structures", for a design wind speed of 90 mph. ~~for horizontal wind loads of not less than 15 psf and net uplift load of not less than 9 psf.~~

(ii) Wind loads for high wind areas (Zone II, and Zone III and Zone IV). When designed for high wind areas (Zone II, ~~and~~ Zone III and Zone IV), the manufactured home, each of its wind resisting parts (including, but not limited to, shear walls, diaphragms, ridge beams, and their fastening and anchoring systems), and its components and cladding materials (including, but not limited to, roof trusses, wall studs, exterior sheathing, roofing and siding materials, exterior glazing, and their connections and fasteners) shall be designed by a Professional Engineer or Architect to resist:

(A) The design wind loads for Exposure C specified in ~~ANSI/ASCE~~ACSE/SEI 7-~~88~~05, "Minimum Design Loads for Buildings and Other Structures", ~~for a fifty-year recurrence interval, and~~ a design wind speed of ~~100~~ 110 mph, as specified for Wind Zone II, ~~or 110~~ 130 mph for Wind Zone III and 150 mph for Wind Zone IV as specified for ~~Wind Zone III~~ (Basic Wind Zone Map); or

(B) The wind pressures specified in the following tables for Main Wind Force Resisting Systems (MWFRS) and for Components and Cladding (C&C):

Table of Design Wind Pressures		
Element	Wind Zone II design wind speed 100 mph	Wind Zone III design wind speed 110 mph
Anchorage for lateral and vertical stability (See Sec. 3280.306(a)):		
Net Horizontal Drag[1,2]	[3] +/- 39 PSF	[3] +/- 47 PSF
Uplift 4	[5] -27 PSF	-32 PSF
Main Wind Force Resisting Systems:		
Shearwalls, Diaphragms and their Fastening and Anchorage Systems [1,2]	+/- 39 PSF	+/- 47 PSF
Ridge Beams and other Main Roof Support Beams (Beams supporting expanding roof sections)	-30 PSF	-36 PSF
Components and Cladding:		
Roof trusses4 in all areas; trusses shall be doubled within 3foot-0 inch from each end of the roof	[5] -39 PSF	[5] +/- 47 PSF
Exterior roof coverings, sheathing and fastenings[4,6,7] in all areas except the following: Within 3 foot 0 inch from each gable end (overhang at end wall) of the roof or endwall if no overhang is povided [4,6,7] Within 3 foot 0 inch from the ridge and eave (overhang at sidewall) or sidewall if no overhang is provided [4,6,7]	[5] -39 PSF	[5] +/- 47 PSF
Within 3 foot 0 inch from each gable end (overhang at end all) of the roof or endwall if no overhang is provided[4,6,7]	[5] -73 PSF	[5] -89 PSF
Within 3 foot 0 inch from the ridge and eave (overhang at idewall) or sidewall if no overhang is provided [4,6,7]	[5] -51 PSF	[5] +/- 62 PSF
Eaves (Overhangs at Sidewalls)[4,6,7]	[5] -51 PSF	[5] +/- 62 PSF
Gables(Overhangs at Endwalls)[4,6,7]	[5] -73 PSF	[5] +/- 89 PSF

~~Wall studs in sidewalls and endwalls, exterior windows and sliding glass doors (glazing and raming), exterior coverings, sheathing and fastenings[8].~~		
~~Within 3 foot-0 inch from each corner of the sidewall and endwall~~	~~+/- 48 PSF~~	~~+/- 58 PSF~~
~~All other areas~~	~~+/- 38 PSF~~	~~+/- 46 PSF~~

Table of Design Wind Pressures					
Design Pressures for Main Wind Force Resisting Systems					
		Wall Pressures		**Roof Uplift Pressures**	
V	**roof**	**(psf)**		**(psf)**	
(mph)	**pitch**	All Units		Single Unit	Double Unit
90 (Zone I)	3:12	12.9	-9.1	-14.7	-12.1
	5:12	12.9	-9.1	-12.1	-13.9
	7:12	12.0	-9.1	-11.7	-13.5
110 (Zone II)	3:12	19.2	-13.5	-21.9	-18.1
	5:12	19.9	-13.5	-18.1	-20.8
	7:12	19.2	-13.5	-17.5	-20.1
130 (Zone III)	3:12	26.9	-18.9	-30.6	-25.3
	5:12	26.9	-18.9	-25.3	-29.0
	7:12	26.9	-18.9	-24.4	-28.1
150 (Zone IV)	3:12	35.8	-25.2	-40.7	-33.7
	5:12	35.8	-25.2	-33.7	-38.6
	7:12	35.8	-25.2	-32.5	-37.4

Design Pressures for Components and Cladding (psf)								
				Roof Pressures				
V	**roof**	**Wall Pressures**		**Roof**			**Roof Overhang**	
(mph)	**pitch**	**Zone 4**	**Zone 5**	**Zone 1**	**Zone 2**	**Zone 3**	**Edge (Zone 2)**	**Corner (Zone 3)**
90 (Zone I)	3:12	17.7	17.7	10.2	10.2	10.2	-33.0	-55.4
		-19.2	-23.7	-16.2	-28.2	-41.6		
	5:12	17.7	17.7	10.2	10.2	10.2	-33.0	-55.4
		-19.2	-23.7	-16.2	-27.2	-41.6		
	7.12	17.7	17.7	16.2	16.2	16.2	-30.0	-30.0
		-19.2	-23.7	-17.7	-20.7	-20.7		
110 (Zone II)	3:12	26.4	26.4	15.2	15.2	15.2	-49.2	-82.8
		-28.6	-35.4	-24.2	-42.1	-2.2		
	5:12	26.4	26.4	24.2	24.2	24.2	-49.2	-82.8
		-28.6	-35.4	-26.4	-30.9	-30.9		
	7:12	26.4	26.4	24.2	24.2	24.2	-44.8	-44.8
		-28.6	-35.4	-26.4	-30.9	-30.9		
130 (Zone III)	3:12	36.9	36.9	21.3	21.3	21.3	-68.8	-115.7
		-40.0	-49.4	-33.8	-58.8	-86.9		
	5:12	36.9	36.9	33.8	33.8	33.8	-68.8	-115.7
		-40.0	-49.4	-33.8	-58.8	-86.9		
	7:12	36.9	36.9	33.8	33.8	33.8	-62.5	-62.5
		-40.0	-49.4	-36.9	-43.1	-43.1		
150 (Zone IV)	3:12	49.1	49.1	28.3	28.3	28.3	-91.6	-154.0
		-53.3	-65.8	-44.9	-78.2	-115.7		

	5:12	49.1	49.1	28.3	28..3	28.3	-91.6	-154.0
		-53.3	-65.8	-44.9	-78.2	-115.7		
	7:12	49.1	49.1	44.9	44.9	44.9	-83.2	-83.2
		-53.3	-65.8	-49.1	-57.4	-57.4		

NOTES:

1 The wall pressures ~~net horizontal drag of +/- 39 PSF to be~~ used in calculating ~~Anchorage for Lateral and Vertical Stability and for~~ the design of Main Wind Force Resisting Systems is based on exterior pressure coefficients (Cp) of +0.8 for windward walls and -0.5 for leeward walls from ASCE/SEI 7-05 *Minimum Design Loads for Buildings and Other Structures* Figure 6-6 with internal pressure coefficients (GCpi) of +/- 0.18 and with a velocity pressure coefficient Kh of 0.85 from Table 6-3 of ASCE/SEI 7-05. ~~a distribution of wind pressures of +0.8 or +24 PSF to the windward wall and -0.5 or -15 PSF to the leeward wall.~~

2 Horizontal drag pressures need not be applied to roof projections when the roof slope does not exceed 20 degrees.

3 + sign would mean pressures are acting towards or on the structure; - sign means pressures are acting away from the structure; ~~+/- sign means forces can act in either direction, towards or away from the structure.~~

4 Design values in this ``Table" are only applicable to roof slopes between 150 degrees (nominal 3~~2~~/12 slope) and 30 degrees (nominal 7/12 slope) for mean roof heights up to 20 feet.

5 The design uplift pressures are the same whether they are applied normal to the surface of the roof or to the horizontal projection of the roof.

6 Shingle roof coverings that are secured with 6 fasteners per shingle through an underlayment which is cemented to a 3/8" structural rated roof sheathing need not be evaluated for these design wind pressures.

7 Structural rated roof sheathing that is at least 3/8 inch in thickness, installed with the long dimension perpendicular to roof framing supports, and secured with fasteners at 4" on center within 3 foot 0inch of each gable end or endwall if no overhang is provided and 6 inches on center in all other areas, need not be evaluated for these design wind pressures.

8 Exterior coverings that are secured at 6 o.c. to a 3/8 structural rated sheathing that is fastened to wall framing members at 6 on center need not be evaluated for these design wind pressures.

9 Uplift pressures on single-unit Main Wind Force Resisting Systems within one half of the mean roof height (h) from the end walls shall be increased by 18 percent for roofs with a 3:12 slope, 50 percent for roofs with a 5:12 slope and 62 percent for roofs with a 7:12 roof slope to account for uplift pressures for winds parallel to the roof ridge. Uplift pressures on multi-unit Main Wind Force Resisting Systems within one half of the mean roof height (h) from the end walls shall be increased by 17 percent for roofs with a 3:12 slope, 6 percent for roofs with a 5:12 slope and 15 percent for roofs with a 7:12 slope.

10 See Figure XX for wind pressure zone designations for Components and Cladding.

Insert Figure here*

Figure XX – Components & Cladding Wall and Roof Zones and Roof Diagram (From ASCE 7-05 Figures 6-11A and 6- 11D) (New Figure)

(2) Wind loads--zone designations. The Wind Zone and specific wind design load requirements are determined by the ~~fastest~~ 3-second gust basic wind speed (mph) within each Zone and the intended location, based on the Basic Wind Zone Map, as follows:
(i) Wind Zone I. Wind Zone I consists of those areas on the Basic Wind Zone Map that are not identified in paragraphs (c)(2)(ii) or (iii) of this section as being within Wind Zone II, ~~or~~ Wind Zone III, or Wind Zone IV respectively.
(ii) Wind Zone II.....110~~100~~ mph. The following areas are deemed to be within Wind Zone II of the Basic Wind Zone Map:
Local governments: The following local governments listed by State (counties, unless specified otherwise):

Alabama: Autauga, Barbour, Bibb, Bullock, Butler, Chambers, Chilton, Choctaw, Coffee, Conecuh, Coosa, Covington, Crenshaw, Dave, Dallas, Elmore, Escambia, Macon, Montgomery, Perry, Pike, Russell, Sumter, Tallapoosa, Washington, Wilcox

Connecticut: Fairfield, Hartford, Litchfield, New haven, Tolland, Windham

Delaware: Kent, Sussex

Florida: Alachua, Baker, Bradford, Clay, Columbia, De Soto, Gadsden, Gilchrist, Glades, Hamilton, Hardee, Highlands, Jefferson, Lafayette, Lake, Leon, Madison, Marion, Orange, Osceola, Putnam, Polk, Seminole, Sumter, Suwannee, Union

Georgia: Appling, Atkinson, Bacon, Baker, Baldwin, Ben Hill, Berrien, Bibb, Bleckley, Brantley, Brooks, Bulloch, Burke, Calhoun, Charlton, Chattahoochee, Clay, Clinch, Coffee, Colquitt, Columbia, Cook, Crawford, Crisp, Decatur, Dodge, Dooly, Dougherty, Early, Echols, Effingham, Emanuel, Evans, Glascock, Grady, Hancock, Harris, Houston, Irwin, Jeff Davis, Jefferson, Jenkins, Johnson, Jones, Lamar, Lanier, Laurens, Lee, Long, Lowndes, Macon, Marion, McDuffie, Meriwether, Miller, Mitchell, Monroe, Montgomery, Muscogee, Peach, Pierce, Pike, Pulaski, Quitman, Randolph, Richmond, Schley, Screven, Seminole, Stewart, Sumter, Talbot, Tattnall, Taylor, Telfair, Terrell, Thomas, Tift, Toombs, Treutlen, Troup, Turner, Twiggs, Upson, Ware, Warren, Washington, Wayne, Webster, Wheeler, Wilcox, Wilkinson, Worth

Hawaii: the entire state

Louisiana: Parishes of Acadia, Allen, Ascension, Avoyelles, Beauregard, Calcasieu, Catahoula, Concordia, East Baton Rouge, East Feliciana, Evangeline, Iberville, Jefferson Davis, Livingston, Pointe Coupee, Rapides, St. Helena, St. Landry, St. Martin, Tangipahoa, Vermilion, Vernon, Washington, West Baton Rouge, West Feliciana

Maine: Androscoggin, Cumberland, Hancock, Kennebec, Knox, Lincoln, Sagadahoc, Waldo, York

Maryland: Caroline, Dorchester, Queen Annes, Talbot, Wicomico

Massachusetts: Bristol, Essex, Franklin, Hampden, Hampshire, Middlesex, Norfolk, Suffolk, Worcester

Mississippi: Adams, Amite, Claiborne, Clarke, Copiah, Covington, Forrest, Franklin, Hinds, Jasper, Jefferson, Jefferson Davis, Jones, Kemper, Lamar, Lauderdale, Lawrence, Leake, Lincoln, Marion, Neshoba, Newton, Noxubee, Pike, Rankin, Scott, Simpson, Smith, Walthall, Wayne, Wilkinson, Winston

New Hampshire: Cheshire, Hillsborough, Merrimack, Rockingham, Strafford

New Jersey: Bergen, Burlington, Camden, Cumberland, Essex, Gloucester, Hudson, Mercer, Middlesex, Monmouth, Morris, Passaic, Salem, Somerset, Union

New York: Bronx, Kings, New York, Putnam, Queens, Richmond, Rockland, Westchester

North Carolina: Bertie, Bladen, Cumberland, Duplin, Edgecombe, Gates, Greene, Halifax, Harnett, Hertford, Hoke, Johnston, Lenior, Martin, Nash, Northampton, Pitt, Robeson, Sampson, Scotland, Wayne, Wilson

Pennsylvania: none

Rhode Island: Providence

South Carolina: Aiken, Allendale, Bamberg, Barnwell, Berkeley, Calhoun, Chesterfield, Clarendon, Colleton, Darlington, Dillon, Dorchester, Fairfield, Florence, Hampton, Jasper, Kershaw, Lancaster, Lee, Lexington, Marion, Marlboro, Orangeburg, Richland, Sumter, Williamsburg

Texas: Angelina, Atascosa, Austin, Bastrop, Bee, Brooks, Burleson, Caldwell, Colorado, De Witt, Duval, Fayette, Fort Bend, Goliad, Gonzales, Grimes, Guadalupe, Hardin, Harris, Hidalgo, Jackson, Jasper, Jim Hogg, Jim Wells, Karnes, Lavaca, Lee, Liberty, Live Oak, McMullen, Montgomery, Newton, Orange, Polk, San Jacinto, Starr, Trinity, Tyler, Victoria, Walker, Waller, Washington, Webb, Wharton, Wilson, Zapata

Virginia: Gloucester, Isle of Wight, James City, Lancaster, Mathews, Middlesex, Northumberland, Southampton, Surry, York. Cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, Suffolk, Virginia Beach

~~Alabama: Baldwin and Mobile.~~

~~Florida: All counties except those identified in paragraph (c)(1)(i)(C) of this section as within Wind Zone III~~

~~Georgia: Bryan, Camden, Chatham, Glynn, Liberty, McIntosh.~~

~~Louisiana: Parishes of Acadia, Allen, Ascension, Assumption, Calcasieu, Cameron, East Baton Rouge, East Feliciana, Evangeline, Iberia, Iberville, Jefferson Davis, LaFayette, Livingston, Pointe Coupee, St. Helena, St. James, St. John the Baptist, St. Landry, St. Martin, St. Tammany, Tangipahoa, Vermillion, Washington, West Baton Rouge, and West Feliciana.~~

~~Maine: Hancock and Washington.~~

~~Massachusetts: Barnstable, Bristol, Dukes, Nantucket, and Plymouth.~~

~~Mississippi: George, Hancock, Harrison, Jackson, Pearl River, and Stone.~~

~~North Carolina: Beaufort, Brunswick, Camden, Chowan, Columbus, Craven, Currituck, Jones, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, and Washington.~~

~~South Carolina: Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry, Jasper, and Williamsburg.~~

~~Texas: Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kennedy, Kleberg, Matagorda, Nueces, Orange, Refugio, San Patricio, and Willacy.~~

~~Virginia: Cities of Chesapeake, Norfolk, Portsmouth, Princess Anne, and Virginia Beach.~~

(iii) Wind Zone III.....130 ~~110~~ mph. The following areas are considered to be within Wind Zone III of the Basic Wind Zone Map:
(A) States and Territories: ~~The entire State of Hawaii, the~~ coastal regions of Alaska (as determined by the 110 ~~90~~ mph isotach on the ~~ANSI/ASCE~~ASCE/SEI 7-05 map), ~~and all of the U.S. Territories of American Samoa, Guam, Northern Mariana Islands, Puerto Rico, Trust Territory of the Pacific Islands, and the United States Virgin Islands.~~

(B) Local governments: The following local governments listed by State (counties, unless specified otherwise):

Alabama: Baldwin, Mobile

Connecticut: Middlesex, New London

Florida: Bay, Brevard, Calhoun, Charlotte, Citrus, Collier, DeSoto, Dixie, Duval, Escambia, Flagler, Gulf, Hendry, Hernando, Hillsborough, Holmes, Indian River, Jackson, Lee, Levy, Liberty, Manatee, Nassau, Okaloosa, Okeechobee, Pasco, Pinellas,

Santa Rosa, Sarasota, St. Johns, St. Lucie, Taylor, Volusia, Wakulla, Walton, Washington

Georgia: Bryan, Camden, Chatham, Glynn, Liberty, McIntosh

Louisiana: Parishes of Assumption, Iberia, Lafayette, Orleans, St. Charles, St. James, St. John the Baptist, St. Martin, St. Tammany

Maryland: Somerset, Worchester

Massachusetts: Barnstable, Bristol, Dukes, Nantucket, Plymouth

Mississippi: George, Greene, Hancock, Harrison, Pearl River, Perry, Stone

New Jersey: Atlantic, Cape May, Ocean

New York: Nassau, Suffolk

North Carolina: Beaufort, Camden, Chowan, Columbus, Craven, Currituck, Dare, Hyde, Jones,

New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, Washington

Rhode Island: Bristol, Kent, Newport, Washington

South Carolina: Beaufort, Charleston, Georgetown, Horry

Texas: Brazoria, Calhoun, Chambers, Galveston, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, Refugio, San Patricio, Willacy

Virginia: Accomack, Northampton

~~Florida: Broward, Charlotte, Collier, Dade, Franklin, Gulf, Hendry, Lee, Martin, Manatee, Monroe, Palm Beach, Pinellas, and Sarasota.~~

~~Louisiana: Parishes of Jefferson, La Fourche, Orleans, Plaquemines, St. Bernard, St. Charles, St. Mary, and Terrabonne.~~

~~North Carolina: Carteret, Dare, and Hyde.~~

iv) Wind Zone IV.....150 mph. The following areas are considered to be within Wind Zone IV of the Basic Wind Zone Map:

The following territories of all of the U.S. Territories of Guam, Northern Mariana Islands, Puerto Rico, Trust Territory of the Pacific Islands, and the United States Virgin

Islands Local governments: The following local governments listed by State (counties, unless specified otherwise):

Florida: Broward, Martin, Miami-Dade, Monroe, Palm Beach

Louisiana: Parishes of Cameron, Lafourche, Plaquemines, St. Bernard, St. Mary, Terrebonne, Vermillion

Mississippi: Jackson

North Carolina: Brunswick, Carteret

Texas: Cameron

(iv) Consideration of local requirements. For areas where local building code requirements exceed the design wind speed requirements of these standards, the Department will consider the adoption
through rulemaking of the more stringent requirements of the State or local building authority.

* * * * *

(iii) Eaves and cornices shall be designed for a net uplift pressure of 2.5 times the design uplift
wind pressure for components and cladding cited in Sec. 3280.305(c)(1)(i) for Wind Zone I, and for the design pressures cited in Sec. 3280.305(c)(1)(ii) for Wind Zones II, III and IIIIV.

* * * * *

Insert figure here (NEW)*
Figure to be deleted and replaced

Insert figure here (not sure if this is the new figure they are referring to above or something else)
Figure to be added
Basis Wind Zone Map (Figure 6.5.3.1(a) of NFPA 501-2005)

(d) Design load deflection. (1) When a structural assembly is subjected to total design live loads, the deflection for structural framing members shall not exceed the following (where L equals the clear span between supports or two times the length of a cantilever):
Floor--L/240

Roof and ceiling--L/180
Headers, beams, and girders (vertical load)--L/180
Walls and partitions--L/180

(2) The allowable eave or cornice deflection for uplift is to be measured at the design uplift ~~load of 9 psf for Wind Zone I, and at the design uplift~~ pressure for components and cladding for roof overhangs cited ~~in paragraph (c)(1)(ii) of~~ this section for all Wind Zones ~~II and III~~. The allowable deflection shall be (2xLc)/180, where Lc is the measured horizontal eave projection from the wall.

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

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

(f) Walls. The walls shall be of sufficient strength to withstand the load requirements for components and cladding as defined in Sec. 3280.305(c) of this part, without exceeding the deflections as specified in Sec. 3280.305(d). The connections between the bearing walls, floor, and roof framework members shall be fabricated in such a manner as to provide support for the material used to enclose the manufactured home and to provide for transfer of all lateral and vertical loads to the floor and chassis.
(1) Except where substantiated by engineering analysis or tests, studs shall not be notched or drilled in the middle one-third of their length.

* * * * *

3280HUD- Log #37 Final Action:
(3280.306)

Submitter: David K. Low, D. K. Low & Associates
Recommendation:
****Include 3280_L37_R.doc here****

Substantiation: The wind provisions of the MHCSS contained in 24CFR3280 are based on a modified version of ASCE 7-88 Minimum Design Loads for Buildings and Other Structures, a wind standard that is now 20 years old. The contemporary wind ASCE/SEI 7-05 Minimum Design Loads for Buildings and Other Structures indicates that high winds extend much further inland than what was considered in 1988. The extension of the high wind regions places HUD homes in areas where design level winds are greater than what the homes were designed to resist. Wind analyses completed by Keshor Mehta, PhD, PE determined that during a design event, homes placed near the edge of the existing HUD Zone I will be exposed to wind pressures nearly twice (186%) those for which the homes where designed. This exposes occupants of those homes to greater risk than occupants of homes designed and constructed to contemporary wind codes and standards like the International Residential Code IRC-2006 and the International Building Code IBC-2006.

This proposal will correct the wind design deficiencies that exist in 24CFR3280 Sections 306 by requiring HUD homes to be secured and anchored to resist wind loads determined by a contemporary wind standard.

Note: Supporting material is available for review at NFPA Headquarters.

Cost/Benefits: A cost benefit analysis has been completed for FEMA Proposal #1. The cost benefit analysis determined that revisions to the wind speed map are needed and are cost beneficial. An electronic copy of the cost benefit analysis completed by Peter Vickery, PhD of Applied Research Associates (titled *MH Final Report 2005*) is available for review at NFPA headquarters.

3280HUD-17 Log #56 Final Action:
(3280.304(b)(1))

Submitter: John G. Bradfield, Composite Panel Assn.
Recommendation: Add text as follows:

Medium Density Fiberboard (MDF) For Interior Applications ANSI A208.2-2002.

Substantiation: This is the standard for a product commonly used in Manufactured Housing that does not have a standard referenced in the current materials section.

Note: Supporting material is available for review at NFPA Headquarters.
This is not original material; its reference/source is as follows:
ANSI A 208.2-2002

Code of Federal Regulations
Title 24, Volume 5
Revised as of April 1, 2006
From the U.S. Government Printing Office via GPO Access
[CITE: 24CFR3280.305]

Proposed Revisions to Sec. 3280.306 Windstorm protection.

(a) Provisions for support and anchoring systems. Each manufactured home shall have provisions for support/anchoring or foundation systems that, when properly designed and installed, will resist overturning and lateral movement (sliding) of the manufactured home as imposed by the respective design loads. ~~For Wind Zone I, the design wind loads to be used for calculating resistance to overturning and lateral movement shall be the simultaneous application of the wind loads indicated in Sec. 3280.305(c)(1)(i), increased by a factor of 1.5. The 1.5 factor of safety for Wind Zone I is also to be applied simultaneously to both the vertical building projection, as horizontal wind load, and across the surface of the full roof structure, as uplift loading. For Wind Zones II and III, the resistance shall be determined by the simultaneous application of the horizontal drag and uplift wind loads, in accordance with Sec. 3280.305(c)(1)(ii).~~

(i) The design wind loads for Exposure C specified in ACSE/SEI 7-05, "Minimum Design Loads for Buildings and Other Structures", for a design wind speed of 90 mph, as specified for Wind Zone I, 110 mph, as specified for Wind Zone II, 130 mph for Wind Zone III and 150 mph for Wind Zone IVas specified Basic Wind Zone Map); or

(ii) The wind pressures specified in the following tables for Support and Anchorage Systems:

Support and Anchorage Pressures

		Wall Pressures		Roof Pressures			
		All Units		Single Unit		Double Unit	
V	roof	(psf)	(psf)	(psf)		(psf)	
(mph)	pitch	Windward	Leeward	Windward	Leeward	Windward	Leeward
90 (Zone I)	3:12	10.2	-6.4	-12.0	-7.3	-9.4	-6.4
	5:12	10.2	-6.4	-9.4	-9.4	-11.2	-11.2
	7:12	10.2	-6.4	-9.0	-9.0	-10.8	-10.8
110 (Zone II)	3:12	15.2	-9.5	17.9	-10.9	-14.1	-9..5
	5:12	15.2	-9.5	-14.1	-14.1	-16.7	-16.7
	7:12	15.2	-9.5	-13.5	-13.5	-16.1	-16.1
130 (Zone III)	3:12	21.3	-13.3	-25.0	-15.3	-19.7	-13.3
	5:12	21.3	-13.3	-19.7	-19.7	-23.4	-23.4
	7:12	21.3	-13.3	-18.8	-18.2	-22.5	-22.5
150 (Zone IV)	3:12	28.3	-17.7	-33.3	-20.3	-26.2	-17.7
	5:12	28.3	-17.7	-26.2	-26.2	-31.1	-31.1
	7:12	28.3	-17.7	-25.1	-25.1	-29.9	-29.9

1 The pressures used in calculating the design of Support and Anchorage Pressures are based on exterior pressure coefficients of Method 2 from ASCE/SEI 7-05 *Minimum Design Loads for Buildings and Other Structures* (Figure 6-6). Internal pressure which do not affect support and anchorage loads were not considered.

2 + sign would mean pressures are acting towards or on the structure; - sign meanspressures are acting away from the structure.

3 Design values in this ``Table'' are only applicable to roof slopes between 15 degrees (nominal 3/12 slope) and 30 degrees (nominal 7/12 slope) for mean roof heights up to 20 feet.

4 The design uplift pressures are the same whether they are applied normal to the surface of the roof or to the horizontal projection of the roof.

5 Uplift pressures for single-unit Support and Anchorage systems within one half of the mean roof height (h) from the end walls shall be increased by 22 percent for roofs with a 3:12 slope, 64 percent for roofs with a 5:12 slope and 81 percent for roofs with a 7:12 roof slope to account for uplift pressures for winds parallel to the roof ridge. Uplift pressures on multi-unit Support and Anchorage Systems within one half of the mean roof height (h) of the end walls shall be increased by 55 percent for roofs with a 3:12 slope, 35 percent for roofs with a 5:12 slope and 46 percent for roofs with a 7:12 slope.

The basic allowable stresses of materials required to resist overturning and lateral movement shall not be increased in the design and proportioning of these members. No additional shape or location factors need to be applied in the design of the tiedown system. Sixty percent of the ~~The~~ dead load of the structure may be used to resist these wind loading effects in all Wind Zones.

(1) The provisions of this section shall be followed and the support and anchoring systems shall be designed by a Registered Professional Engineer or Architect.

3280HUD- (3280.103) Log #59 Final Action:

Submitter: Michael Lubliner, Washington State University

Recommendation: Revise text as follows:

This proposal replaces current whole house mechanical ventilation system requirements with ASHRAE Standard 62.2.

Sec. 3280.103 Light and ventilation.

(a) Lighting. Each habitable room shall be provided with exterior windows and/or doors having a total glazed area of not less than 8 percent of the gross floor area.

(1) Kitchens, bathrooms, toilet compartments, laundry areas, and utility rooms may be provided with artificial light in place of windows.

(2) Rooms and areas may be combined for the purpose of providing the required natural lighting provided that at least one half of the common wall area is open and unobstructed, and the open area is at least equal to 10 percent of the combined floor area or 25 square feet whichever is greater.

(b) Whole-house ventilation. Each manufactured home must be provided with whole-house ventilation in accordance with ASHRAE Standard 62.2 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.

DELETE REST OF SECTION

Substantiation: Unlike the current MHCSS language, the ASHRAE standard 62.2 has been developed by recognized international experts and represents the most current residential ventilation standard. Adoption of 62.2 will help to improve the indoor environment for new HUD code homebuyers. Adoption of ASHRAE 62.2 will address problems associated with HUD's lack of definition of "balanced" ventilation and better address spatial and temporal ventilation effectiveness issues. Adoption of 62.2 will not increase the first cost of the home, since HUD MHSCC already requires mechanical whole house and spot ventilation systems.

Note: If ASHRAE 62.2 is adopted, whole house ventilation systems should be commissioned; homeowners should also be provided with system operating instructions. HUD should also then consider eliminating the need to the Consumer Formaldehyde Notice.

Note: Supporting material is available for review at NFPA Headquarters.

3280HUD- (3280.505) Log #63 Final Action:

Submitter: Michael Lubliner, Washington State University

Recommendation: Revise text as follows:

This proposal would require the manufacturer to address the specifics of air leakage control, so that there is no question as to what is acceptable practice to plant staff, IPIA, DAPIA and HUD. This is consistent with NFPA-501 committee proposals CP- (Log #10):

Move NFPA-501 appendix A-8.5.1.1 to MHCSS 3280 Section 505 and change "should" to "shall" as follows:

"6.5.1.1 The home manufacturer shall address each of the following considerations for the each type of penetration encountered in the home design and construction:

(1) Location(s) in the envelope and the expected size of the penetration to be sealed

(2) Type of material to seal the penetration

(3) Material application technique and steps required to ensure that the seal is not damaged

(4) Whether the material will be applied during construction or setup

(5) Quality control inspections to ensure proper workmanship

Substantiation: The Manufactured Housing Research Alliance (NMRA) publication "Moisture Problems in Manufactured Homes - Understanding Their Causes and Finding Solutions – Manufacturers Checklist states: "Specify production details that minimize moisture damage. Attention to detail is the most important measure that can be taken during a home construction to avoid moisture problems. No matter how well engineered a design is for moisture control, it can be defeated by incorrect installation of materials.

Testing of air leakage on hundreds of manufactured homes in the Pacific Northwest suggests that in many cases manufacturers were unaware of the need for better attention to details in this proposal. In addition to improving moisture control, this proposal will reduce infiltration, save energy, and improve occupant comfort, especially during severe weather. Drafts and cold-air on windy days are common homeowner complaints, which can be avoided with improved quality control specifications and a few tubes of sealant. Since manufactured homes are required to have occupant controlled mechanical ventilation systems, there is little concern that the home will be built "too tight." While many energy efficient builders "build tight and ventilate right," not all do. This proposal would help to level the industry playing field.

Testing conducted by NIST on a typical HUD code home revealed significant leakage at all plumbing and HVAC floor penetrations. Attempting to seal these leaks after construction costs thousands of dollars, and results in only limited air leakage reduction. Paying attention to air sealing details is one of the most cost-effective energy efficiency measures possible; failing to do so is a significant lost opportunity.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Statement: Prelim SC Action. The MHCC notes that the DOE rule making regulation that is being developed is likely to address this topic. Also, see MHCC action on 3280 Log #64.

3280HUD- Log #64 Final Action:
(3280.506(b))

Submitter: Michael Lubliner, Washington State University
Recommendation: Revise text as follows:
This is consistent with NFPA-501 committee proposals CP- (Log #11). Adopt NFPA 501 appendix A-8.8.3 in MHCSS 3280 Section 506 (b) and change "should" to "shall" as follows:
All areas where insulation compression exists shall be addressed by plant quality control processes. This includes compression as a result of electric wiring and receptacles, plumbing, medicine cabinets, utility panels, and metal frames. To address this, batt-type wall insulation shall be cut around electrical and plumbing fixtures and electric wiring and plumbing runs. Batt type or blanket type shall be cut to fit to limit compression and comply with the insulation manufacturer stated R-value. Exceptions shall be limited to "thermal shorts" associated with penetrations from plumbing and ductwork.
Substantiation: This proposal requires the manufacturer to better address the specifics of insulation installation procedure and better define what is acceptable to plant staff, IPIA, DAPIA and HUD. This proposal will help to ensure that the desired "FTC approved" R-value is achieved buy requiring specific installation practices that are recommended by many insulation manufacturer installation manuals.
Experience in the PNW has found that "the devil is in the details" when it comes to proper installation of insulation. This proposal will improved wall insulation performance with no additional material costs, just a commitment to installation quality that helps to level the playing field. The previous NFPA 501 committee indicated that "best practice" is suitable in the appendix; this is not a suitable energy standard in today's manufactured housing.
The impact of voids and compression on insulation performance is significant. In laboratory testing thermal resistance values for walls with sloppy insulation installations vary as much as 14% from walls with good installations. In recognition of this fact, the Energy Star site built program requires raters and builders to evaluate insulation quality. The same requirement should apply to the HUD code home industry. Insulation quality is not addressable after the home leaves the plant, as there is no access to wall, ceiling or floor insulation. It is vitally important to address insulation details at the plant and do it right the first time!
Adoption of this proposal is critical, given the lack of HUD funding over the past few years to support oversight of in-plant QA by HUD's contactor IBTS. Clarity between the DAPIA approved plan, in-plant QA process and IPIA can only help this difficult situation.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Statement: Prelim SC Action. The MHCC notes that the DOE rule making regulation that is being developed is likely to address this topic. Also, see MHCC action on 3280 Log #63.

3280HUD-18 Log #73 Final Action:
(3280.304(b)(1))

Submitter: Gary L. Heroux, Composite Panel Association (CPA)
Recommendation: Update product standard for particle board:
Old standard - ANSI A208.1-1999
Replace with new - ANSI A208.1-2009
Substantiation: No Substantiation given.

3280HUD-20 Log #77 Final Action:
(3280.303(b))

Submitter: Michael Wade, Cavalier Home Builders, Inc.
Recommendation: Revise text to read as follows:
3280.303 General requirements.
(b) Construction. All construction methods shall be in conformance with an approved quality assurance manual and accepted engineering practices to insure durable, livable, and safe housing. ~~and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.~~
Substantiation: Journeyman is an antiquated term. This word/term does not appear in any other location within 3280, nor is it used in 3282. The term is not defined and is potentially confusing and misleading.
To be considered/qualified as a Journeyman, typically a journeyman's license is required by many localities and states. Such requirements do not apply to the typical employee working in the manufactured housing industry.
The new QC program which HUD is requiring the industry to implement places tremendous emphasis on training of employees, especially employees that are responsible for verifying that specific job functions or work processes have been performed properly. This fact in conjunction with each manufacturer's commitment to quality and the ever increasing expectations of our consumers, will result in a quality standard that continues to increase.

Cost Benefit: The proposal must include a statement as to whether the proposed change would result in an increased cost, and if so, how much of an increase. The benefit to be gained if the proposed change is implemented in the manufactured housing program document must also be described.
The proposed change to this section will not have an effect on the cost of homes produced in our industry.

3280HUD- Log #79 Final Action:
(3280.304)

Submitter: Matthew Dobson, Vinyl Siding Institute, Inc.
Recommendation: *Add to section 304 Materials*
Plastic
Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Siding - ASTM D3679-09a
Standard Specification for Polypropylene (PP) Siding ASTM D7254 - 07

Add to Subpart E - Testing
3280.407 Standard for vinyl siding and polypropylene siding used in manufactured homes.
(a) Scope. This section sets the requirements for the manufacturing and installation of vinyl siding and polypropylene siding.
(b) Standard
(1) Vinyl siding. All vinyl siding shall comply with the requirements of ASTM D3679-97a and shall be certified and labeled as conforming to those requirements by an independent quality assurance agency.
(2) Polypropylene siding. All polypropylene siding shall comply with the requirements of ASTM D7254-07 and shall be certified and labeled as conforming to those requirements by an independent quality assurance agency.
(c) Installation.
(1) Vinyl siding and polypropylene siding shall be installed in accordance with the manufactures installation instructions. Vinyl siding and soffit installation shall be based on ASTM D4756 Standard Practice for Installation of Rigid Poly (Vinyl Chloride) (PVC) Siding and Soffit.

Substantiation: Minimum standards for the manufacturing of vinyl siding have been in place for well over a decade. Additionally, manufacturing standards or polypropylene siding have been in place for several years.

Both the International Residential Code and the International Building Code have required third party product certification for vinyl siding since 2006. Without these requirements, substandard materials can be used in manufactured housing.

For example, recently noncertified vinyl siding was found being used in the Carolinas that did not meet the requirements of ASTM D3679. It was disintegrating on the wall and after further tests it was noted that Lead was being used as a stabilizer in the product. Certified products are not allowed to use Lead as a stabilizer.

In 1998, the Vinyl Siding Institute, Inc. launched the VSI Product Certification Program as a means for manufacturers to independently verify the quality of the vinyl siding they produce. Based on the success of the VSI Product Certification Program for vinyl siding, VSI added polypropylene siding certification in the program in 2010.

Vinyl siding certified through a third party certification program:

- Meets or exceeds the industry standard for quality and performance (ASTM D3679), as verified by an independent, accredited quality control agency through twice yearly, unannounced plant inspections, product testing and quality review.
- Meets the requirements of the International Residential Code and International Building Code, which requires that vinyl siding be certified to meet ASTM D3679 by an accredited quality control agency.
- Withstands the impacts of recommended installation procedures.
- Lies straight on a flat wall and does not buckle under normal conditions.
- Weathers the effects of sunshine, rain, and heavy winds of at least 110 mph.
- Meets manufacturers' advertised specifications for length, width, thickness, and gloss.
- Can be identified by a variety of program logos and/or labels.

Vinyl siding must be installed correctly in order to perform correctly. The base point for proper vinyl siding installation is ASTM D4756, Standard Practice for Installation of Rigid Poly Vinyl Chloride (PVC) Siding and Soffit. This is the standard method for installation of vinyl siding and soffit. Manufactures may have small variations from this standard so it is necessary to reference the manufacture's installation instructions first and the standard second. This standard is indirectly referenced in both the International Building Code and International Residential Code.

More information on product certification is available at www.vinylsiding.org and www polypropylenesiding.org.

Cost/Benefit Information. The Proposal must include a statement as to whether the proposed change would result in an increased cost, and if so, how much of an increase. The benefit to be gained if the proposed change is implemented in the manufactured housing program document must also be described.

This change will not impact the cost of construction as most vinyl siding and polypropylene siding is currently certified.

3280HUD- Log #80 Final Action:
(3280.406 (New))

Submitter: James P. Van Schoyck, PFS Corporation
Recommendation: Add text to Subpart E, Testing to read as follows:

Sec. 3280.406 Air chamber test methods (Primary and Secondary) for certification and qualification of formaldehyde emission levels.

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

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

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

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

(1) The chamber shall be operated indoors.

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

(i) Plywood--0.29 Ft2/Ft3, and

(ii) Particleboard--0.13 Ft2/Ft3.

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

(4) The test concentration (C) shall be standardized to a level (C_o) at a temperature (t_o) of 77 (deg)F and 50 percent relative humidity (H_o) by the following formula:

$$C = C_o x [1 + Ax (H - H_o)] \times e\text{-}R(1 / t - 1 / t_O)$$

where:

C = Test formaldehyde concentration

C_o = Standardized formaldehyde concentration

e = Natural log base

R = Coefficient of temperature (9799)

t = Actual test condition temperature (° K)

t_o = Standardized temperature (° K)

A = Coefficient of humidity (0.0175)

H = Actual relative humidity (%)

H_o = Standardized relative humidity (%)

The standardized level (C_o) is the concentration used to determine compliance with Sec. 3280.308(a).

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

(c) Secondary method testing. Secondary method testing is defined as specified in ASTM D6007-02, with the additional conditions specified below:

(1) The secondary method shall be operated using the testing conditions and loading rates specified in ASTM D 6007-02, and the conditioning time used to establish equivalence with the primary method. In addition, when testing panels, the secondary method shall be operated by testing nine specimens representing evenly distributed portions of an entire panel. The nine specimens shall be tested in groups of three specimens, resulting in three test results, which shall be averaged to represent one data point for the panel.

(2) Equivalence between the secondary method and the primary method must be established, at least once each year, for each testing laboratory used for CFR 3280 compliance. Minimum requirements for an equivalence demonstration shall include at least ten comparison sample sets, which compare the results of the primary and secondary methods. The following parameters must be met in the comparison:

(i) For the primary method, each comparison sample shall consist of the result of simultaneously testing an appropriate number of panels (factoring in the loading rate) from the same batch of panels tested by the secondary method.

(ii) For the secondary method, each comparison sample shall consist of testing nine specimens representing evenly distributed portions of an entire panel. The nine specimens shall be tested in groups of three specimens (factoring in the loading rate), resulting in three test results, which shall be averaged to represent one data point for the panel, and matched to their respective primary method comparison sample result.

(iii) The ten comparison sample sets shall consist of testing a minimum of five sample sets in each of at least two of the following ranges of formaldehyde concentrations, as measured by the primary method:

a. Lower range: less than 0.07 ppm

b. Intermediate range: 0.07 to less than 0.15 ppm

c. Upper range: 0.15 to 0.30 ppm

(3) The average and standard deviation of the difference of all comparison sets shall be calculated as follows. For each of the two ranges used for testing, the following computations shall be performed:

(i). Denote the number of sets in the given range by n.

(ii). Compute the difference for the ith set by Di, where i ranges from 1 to n.

(iii) Compute the average, X, and standard deviation, S, of the differences according to the following formulas:

*** Insert Equations here***

(4) The secondary method shall be considered equivalent to the primary method if the following condition is met for both tested ranges:

$[X] + 0.88\ S \leq C$

where C is equal to :

0.026 for the lower range;
0.038 for the intermediate range; and
0.052 for the upper range.

(5) Equivalence must be established between the primary and secondary method to represent the range in emissions based on the emission standards specified in section (c), (2), (iii).

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

Substantiation: Currently Section 3280.406 *"Air chamber test method for certification and qualification of formaldehyde emission levels"* requires the Formaldehyde Emission Level test to be performed in accordance with ASTM E1333 *"Test Method for Determining Formaldehyde Levels from Wood Products Under Defined Test Conditions Using a Large Chamber."* PFS Corporation is requesting an alternate test method to the standard ASTM E 1333 test.

There are two (2) most recent formaldehyde emissions limitation programs in the United States and they are:

1. California Air Resources Board (CARB) *"ATCM to Reduce Formaldehyde Emission From Composite Wood Products."*
2. Environmental Protection Agency (EPA) Public Law 11-199 *"Title VI - Formaldehyde Standards for Composite Wood Products."*

Both CARB and EPA specify the use of ASTM E1333 but also allow the use of ASTM D6007 test method after equivalence has been proven between the two. Note - the equivalence is based on satisfactory compliance with minimum allowable variation between the ASTM E1333 test results and the ASTM D6007 test results which are determined on the same sample. PFS testing laboratory conducted the correlation protocol using our ASTM D6007 small chamber *(Mobledehyde)* test apparatus. The Mobledehyde is a CARB approved secondary method. A copy of the PFS Corporation correlation test results showing compliance with requirement is Attachment A.

Note: Supporting material is available for review at NFPA Headquarters.

COST BENEFIT: The reasons for this request is that the ASTM D6007 is a more efficient test method because the

$$\bar{X} = \sum_{i=1}^{n} D_i / n$$

$$S = \sqrt{\sum_{i=1}^{n} (D_i - \bar{X})^2 / (n-1)}$$

sample size is smaller and the test is completed in less time. This difference reduces sample preparation time, shipping and handling costs, and the time to conduct the emission measurement which is a big savings to the HUD manufacture program.

Because the small chamber testing takes approximately 14 fewer hours than large chamber and the amount of lab area required is smaller - the cost savings is significant. During a 24 hour period - the small chamber has allowed for PFS to generate $6,000.00 in testing fees using three small chambers vs. $600.00 using the large chamber method. We allow for the small chambers to run via computer controlled data acquisition for over-night testing. This eliminates need for staff over-time.

ATTACHMENT C2

3282HUD-(20) Log #1 Final Action:

Submitter: Steven T. Anderson, Murray, UT

Recommendation: Add text to read as follows:

The infrastructure supporting a manufactured home, including but not limited to — streets and roads, water, sewer and drainage, electricity, and natural gas, and all other utility services, shall be constructed and maintained in accordance with the public works standard design specifications and maintenance standards that are appropriate for the home and the immediate area as determined by the local public works authority. Inspection and enforcement of this provision is left at the local level.

Substantiation: Several manufactured home communities are constructed at where the infrastructure — particularly the electrical — will not support the newer energy star homes. Most public works standards already support upgraded conditions. The cost would be borne by the park owner as a capital improvement in order to upgrade their community and get newer homes in their parks.

ATTACHMENT C3

3285HUD- Log #1 Final Action:
(Entire Document)

Submitter: Boone Smith Morris, Pompano Beach, FL
Recommendation: Standard test methods for establishing load assistance design values of Alternative Foundation Systems used for Manufactured Home Installations.
Substantiation: There currently exists no “approved” test protocol for alternative foundation systems. A standards subcommittee is working on a ground anchor test protocol, and this is a necessary addition to that project. Existing tests on alternative systems vary widely in test loads and methodology, and guidance is needed in order to provide uniformity. This would provide assurance to DAPIAs, home manufacturers and consumers that proper testing has been accomplished.
Note: Supporting material is available for review at NFPA Headquarters.
This is not original material; its reference/source is as follows:
K2 Engineering

3285HUD- Log #2 Final Action:
(3285.203)

Submitter: Susan Brenton, Manufactured Housing Communities of Arizona (MHCA)
Recommendation: Revise text to read as follows:
3285.203(c): Site Drainage. (c) All drainage must be diverted away from the home. Drainage shall be done in accordance with regulations set forth by the Local Authority Having Jurisdiction (LAHJ). If the LAHJ has not adopted regulations regarding drainage, drainage ~~and~~ must slope a minimum of one-half inch per foot away from the foundation for the first ten feet: and, where ~~Where~~ property lines, walls, slopes, or other physical conditions prohibit this slope, this site must be provided with drains or swales or otherwise graded to drain water away from the structure, as shown in Figure to 3285.203.
Substantiation: In many manufactured housing rental communities, particularly in areas with low annual rainfalls and older communities, there is not 10 feet between homes. This is because many of the early zoning ordinances only required 6 feet between homes. Under the current rule, community owners are discouraged from replacing older homes with new homes due to the fact that installation of a new home will require drains, swales, etc. This may also prevent homeowners from moving their homes into communities that have less than 10 feet between homes because of the additional expense to install drains or swales and the aesthetics of having a home which sets on a dramatically sloped lot.
Swales and drains are difficult to install in many rental communities due to the fact that typically water is diverted from the home to the street by the grade of the land (in fact, there have been several cases before the Arizona Mobile Home Parks Hearing Officer where it was ruled that proper grading in rental communities was a responsibility of the community owner as the owner must provide safe, habitable premises). In many communities the land is graded down to street level, and water runs down the street or gutter. If an installer then has to add a drain or swale because there is less than 10 feet between homes, the drain or swale could end up running lower than street level and some other accommodation will have to be made for drainage (i.e., installing larger swales throughout the community, drains under roads, etc.) unless more dirt is added to the lot.
Cost Benefit: In speaking with installers and community owners in the Phoenix and Tucson, Arizona areas, I have learned that installation of drains or swales can add $1,000 to $3, 000 to the cost of installing a manufactured home.
The issue of drainage should be left up to the local authority having jurisdiction since annual rainfall and soil types differ throughout the United States.

3285HUD- Log #3 Final Action:
(3285.4 and 3285.603(f) (New))

Submitter: Lois Starkey, Manufactured Housing Institute
Recommendation: 24 CFR Part 3285
Model Manufactured Home Installation Standards.

Add to 3285.4 the following reference.

(h)(4) NFPA 13D, Standard for the Installation of Sprinkler Systems in One and Two Family Dwellings and Manufactured Homes, 2010 edition.

Add to 3285.603 a new subsection (f).

3285.603(f) Fire sprinkler system water supply and testing verification by home installer. The adequacy of the water supply to the fire sprinkler system inlet is to be verified by the installer as meeting the minimum requirements identified of the Fire Sprinkler Certificate (located in the home next to the data plate). (See ξ3280.210(q) of the Manufactured Home Construction and Safety Standards.) The fire sprinkler system piping is to be tested in accordance with the home manufacturer's installation instructions. The home installer must provide its company (or individual if no company) name and address along with the date on the Fire Sprinkler System Certificate.

INSERT 2 FIGURES #1 & #2 for 3285HUD_L3_R.HERE

Substantiation: The Manufactured Home Construction and Safety Standards (MHCSS) do not address fire safety and prevention through the use of fire sprinklers. HUD has taken the position that it cannot preempt state and local jurisdictions from requiring the installation of fire sprinkler systems in new manufactured homes. An increasing number of state and local jurisdictions have established ordinances requiring fire sprinklers in new single family dwellings including manufactured homes, and/or are adopting the 2009 International residential Code which includes fire sprinkler system requirements.

This proposal, therefore, adds a new subpart to Section 3280 providing for a preemptive fire sprinkler system when a manufacturer elects to install a fire sprinkler system or a state or local authority having jurisdiction require that a fire sprinkler system be installed for new manufactured homes.

The standard gives manufacturers the option of utilizing fire sprinkler systems designed in accordance with NFPA 13D or in accordance with a prescriptive method outlined in the new section 3280.210. This prescriptive method is based on the 2009 IRC code and specifically references the tables used in the IRC 2009 edition to determine pipe sizing and water pressure. One advantage of this method, as opposed to the NFPA 13D method, is that the actual design process is much simpler and can easily be done without the use of a complicated computer program. The proposal is also modeled closely from elements of the fire sprinkler standards for manufactured homes in the California code, Title 25, article 2.5, sections 4300-4318.

The proposed standard utilizes a design process that considers the production and distribution methods of factory built housing where the ultimate site location of the home is unknown. The proposal provides for the calculation of the minimum required water pressure and flow rate at the inlet to the home needed for the fire sprinkler system to operate properly, and then requires the information to be included on a certificate placed in the home. The NFPA 13D method uses a design approach whereby the water pressure in the street, pressure losses in the water mete, and the piping between the street and the home inlet must be known. This approach does not work for our industry. As noted, the proposal requires that the manufacturer permanently affix a Fire System Certificate adjacent to the data plate specifying the minimum required pressure in pounds per square inch (psi) and flow rate in gallons per minute (gpm) for the water supply system (Section 3280.210(q)).

The proposed standard also requires a valve tag to be placed on the inlet of the fire sprinkler system [210(r)]; a short statement to be added to the manufacturer's installation instruction [210(t)] and a copy of any fire system component

written instructions to be shipped with the home [210(s)].

Under a new section 3285.603(g) the proposal would make the home installer responsible to do the following as part of the installation process:

1. Pressure test the fire sprinkler system piping system following instructions provided by the manufacturer,
2. Verify that the adequacy of the supply to the system against the minimum requirements call out on the Certificate provided by the manufacturer, and
3. Provide his company name, address and date of home installation on the Certificate.

Cost Impact:

The estimated cost impact for installing a sprinkler system in a new manufactured home on a "where required" basis should be minimal. In fact this proposal should reduce costs from current requirements to meet state and local fire sprinkler standards because the MHI proposal calls for design approval and installation in-house, using the procedures outlined in the Manufactured Home Procedural and Enforcement Regulations, (24 CFR Part 3282).

This proposal will minimize cost variances caused by local ordinances that go beyond the NFPA 13D minimum requirements for fire sprinkler systems.

According to a 2008 study prepared by the Fire Protection Research Foundation, *Home Fire Sprinkler Cost Assessment,* the cost of installing sprinkler systems to the site builder averaged $1.61/per sprinklered square foot. Sprinklered square feet is the total area of spaces with sprinklers. This cost includes design, installation, and other costs such as permits, and water meter fees, to the extent they apply.

Since manufactured homebuilders will be able to utilize in-plant design and inspection procedures, it is estimated that the cost for this proposal would be between $.50 and $.75 per square sprinklered foot.

This is not original material; its reference/source is as follows:
IRC 2009

3285HUD- Log #4 Final Action:
(3285.203(C) Site Drainage)

Submitter: Gregory L. Johnloz, Follett Investment Properties, Inc. / Rep. Manufactured Housing Communities of Arizona
Recommendation: (c) All drainage must be diverted away from the home. Drainage shall be done in accordance with regulations set forth by the Local Authority Having Jurisdiction (LAHJ). If the LAHJ has not adopted regulations regarding drainage, drainage ~~and~~ must slope a minimum of one-half in. per ft away from the foundation for the first ten feet and, where ~~Where~~ property lines, walls, slopes, or other physical conditions prohibit this slope, the site must be provided with drains or swales or otherwise graded to drain water away from the structure, as shown in Figure to 3285.203.

Substantiation: In many manufactured housing rental communities, particularly in areas with low annual rainfalls and older communities, there is not 10 ft between homes. This is because many of the early zoning ordinances only required 6 ft between homes. Under the current rule, community owners are discouraged from replacing older homes with new homes due to the fact that installation of a new home will require drains, swales, etc. This may also prevent homeowners from moving their homes into communities that have less than 10 ft between homes because of the additional expense to install drains or swales and the aesthetics of having a home which sets on a dramatically sloped lot.

Swales and drains are difficult to install in many rental communities due to the fact that typically water is diverted from the home to the street by the grade of the land (in fact, there have been several cases before the Arizona Mobile Home Parks Hearing Officer where it was ruled that proper grading in rental communities was a responsibility of the community owner as the owner must provide safe, habitable premises). In many communities the land is graded down to street level, and water runs down the street or gutter. If an installer then has to add a drain or swale because there is less than 10 ft between homes, the drain or swale could end up running lower than street level and some other accommodation will have to be made for drainage (i.e., installing larger swales throughout the community, drains under road, etc.) unless more dirt is added to the lot.

Cost/Benefit Information: In speaking with installers and community owners in the Phoenix and Tucson, Arizona areas, I have learned that installation of drains or swales can add $1,000 to $3,000 to the cost of installing a manufactured home.

The issue of drainage should be left up to the local authority having jurisdiction since annual rainfall and soil types differ throughout the United States.

This is not original material; its reference/source is as follows:
Generally from Proposal generated by Susan Brenton - MHCA Executive Director.

ATTACHMENT D1

HUD-MHCC Status Report OCT-2012

Log #	Date Entered	Citation	First Name	Last Name	Date To MHCC	MHCC Action[1]	Date To HUD	Required Date[2]	Subcommittee	Topic and Notes		
1	07/31/2003	3280.607.1(a)	Earl A.	Gilson	4/2008 P&P Report @6/2008 MHCC Mtg	R	2/2004	START: STOP:	Technical Systems	Accessibility: Single handle faucets in Kitchen	COMLETE	
1	07/31/2003	Entire Document (New)	Mark A.	Nunn	10/2010 Agenda	A	3/2011	START: STOP:	Technical Structure and Design	Ground Anchor. Draft test protocol for ground anchors.		According to 3/2011 minutes, this proposal seems to have been accepted however it is vastly modified since original proposal
CP1	05/21/2004	3280 Various (New)		HUD MHCC	10/2010 Agenda	A		START: STOP:	Technical Systems	Electrical: Update to use the 2002 edition of NFPA 70 with amendments.		Unable to locate Date to HUD
1	10/04/2004	3285 Entire Document	Boone Smith	Morris	4/2006			START: STOP:	Technical Structure and Design	Alternative Foundation Design/Ground Anchor Standard: Recommendation to use an alternative foundation system. No specific language provided.		Unable to locate MHCC Action and Date to HUD
2	07/31/2003	3280.112	Earl A.	Gilson	10/2010-Preliminary Action 3-2011 SC	APR	12/1/2011	START: STOP:	General	Accessibility: Extend hall width to 30 inches (from 20 inches). Handled by a letter ballot.	Complete (letter ballot?)	Complete (letter ballot?)
2	10/29/2009	3280.210		HUD MHCC	12/2009 Ballot	A	12/2009 Ballot	START: STOP:	Technical Structure and Design	Safety: Require CO detection in homes.	COMLETE	
2	01/25/2010	3285.203	Susan	Brenton	3/1/2011	APR	12/1/2011	START: STOP:	Technical Structure and Design	Site Work: Requires drainage form the home consistent with Local AHJ rules.	Complete	Complete
3	07/31/2003	3280.105.2(b)	Earl A.	Gilson	10/2010 Preliminary Action 4/2011 SC	APR	12/1/2011	START: STOP:	Technical Structure and Design	Accessibility: Increase door width to 32 inches (from 28 inches).	Complete	Complete
CP3	06/28/2010	3280.806		HUD MHCC	10/2010 Meeting Agenda	R		START: STOP:	Technical Systems	Electrical Safety: Specify minimum distance between shower/tub enclosure and electrical outlets.		Unable to locate Date to HUD
3	07/27/2010	3285.4 and 3285.603(f) (New)	Lois	Starkey	10/1/2010		12/11/2012	START: STOP:	Technical Structure and Design	Safety: Provide criteria for on site completion to insure sprinkler system installation and water supply is inspected and completed. Related to 3280,		
4	07/31/2003	3280.804(m) (New)	Brendan A.	Foley	7/2004 Ballot	A	7/2004 Ballot	START: STOP:	Technical Systems	Electrical: Require AFCIs for certain branch circuits.	COMLETE	
5	07/31/2003	3280.802(42) (New)	Brendan A.	Foley	7/2004 Ballot	A	7/2004 Ballot	START: STOP:	Technical Systems	Electrical: Provide definition for AFCIs. Related to Log #4 for 3280.	COMLETE	
6	07/31/2003	3280.801(a)(b)	Brendan A.	Foley	7/2004 Ballot	APR	7/2004 Ballot	START: STOP:	Technical Systems	Electrical: Update to reference the 2002 edition of NFPA 70.	COMLETE	
7	07/31/2003	3280.804(m) (New)	Don	Bliss	4/2008 P&P Report @6/2008 MHCC Mtg	R	2/2004	START: STOP:	Technical Systems	Electrical: Require AFCIs for certain branch circuits. Related to Log # 4.		According to 2/2004 meeting minutes, this item appears to be rejected at this meeting instead

1. MHCC ACTIONS- Refer to MHCC Bylaws for more detail on actions.
A-Accept
APR-Accept In Principle
R-Reject
Required date refers to a Time Sensitive review period that may be required. Refer to MHIA 2000 for more detail.

8	08/12/2003	R.3280.309.1, R309.1.1, R309.2, R309.3 & E 3802.2	Daniel/Jason/C	Spartz	4/2008 P&P Report @6/2008 MHCC Mtg	R	2/2004	START: STOP:	Technical Structure and Design	Provisions for garages. Multiple provisions for separation, wall penetrations and electrical requirements.		According to 2/2004 meeting minutes, this item appears to be rejected at this meeting instead
9	02/23/2004	3280.101	Earl A.	Gilson	3/2011 Meeting Agenda-SC	R	3/2011	START: STOP:	Technical Structure and Design	Accessibility: Revises the scope of 3280 to address accessibility of the home.	COMLETE	
10	02/23/2004	3280.104 Ceiling Heights	Earl A.	Gilson	4/2011 Meeting Agenda-SC	R	12/1/2011	START: STOP:	Technical Structure and Design	Accessibility: Seven (minimum) ceiling height throughout all habitable rooms and spaces.	Complete	Complete
11	02/23/2004	3280.105.B(2)	Earl A.	Gilson	3/2011 Meeting Agenda-SC	R	12/1/2011	START: STOP:	Technical Structure and Design	Accessibility: Increase exterior door width to 32 inches (from 28 inches).	Complete	Complete
12	02/23/2004	3280.607	Earl A.	Gilson	3/2011 Meeting Agenda-SC	R	3/2011	START: STOP:	Technical Systems	Accessibility: Single handle faucets in kitchens and bathrooms.	COMLETE	
13	02/23/2004	3280.710	Dana C.	Roberts	3/2008 P&P Report - Status Unknown	A		START: STOP:	Technical Systems	Kitchen Range Venting. Allow certain types of vents to not discharge to the exterior.		unable to find date to HUD
14	09/30/2004	3280.403(b), 404 (b) and 405 (b)	Thomas	Shuping	6/2008 P&P report	Sent to task group	TBD	START: STOP:	Technical Structure and Design	Referenced Standard: Update AAMA standards to 2002 edition.	Sent to task group 10/19/11 (by MHCC - same task group as Log 20)	Sent to task group 10/19/11 (by MHCC - same task group as Log 20)
15	09/30/2004	Chapter 5, 6 & 7	Al	Preusch	3/1/2011	R	12/1/2011	START: STOP:	Technical Structure and Design	Foundation Design: Recommendation to use a proprietary foundation system. No specific language provided.	Complete	Complete
16	11/15/2004	3280.801, 803,(a) (b), 803(k)(1), k(3), k(3) (ii),K(3)(iii), 804, (a)(k), 806, 3(iv) 806(a)(2), 808(a)(m)(g)	Kirk	Schirra	6/2008 P&P report	APR	3/2011	START: STOP:	Technical Systems	Electrical: Update to use the 2005 edition of NFPA 70.	Complete	
17	11/15/2004	3280.802(42)	Kirk	Schirra	6/2008 P&P report	APR	3/2011	START: STOP:	Technical Systems	Electrical: Provide definition for AFCIs. Related to Log #4 for 3280.	Complete	
18	11/15/2004	3280.804(M)	Kirk	Schirra	6/2008 P&P report	R	12/1/2011	START: STOP:	Technical Systems	Electrical: Require AFCIs for certain branch circuits.	Complete	Complete
19	11/15/2004	3280.804(m) (New)	Kirk	Schirra	6/2008 P&P report	APR	3/1/2011	START: STOP:	Technical Systems	Electrical: Require AFCIs for certain branch circuits in bedrooms.	Complete	
20	08/10/2005	3280.403, 3280.404, 3280.405, and 3280.508(e)	Mark A.	Nunn	6/2008 P&P report	In Task Group	TBD	START: STOP:	Technical Systems	Windows and Doors: Update to more recent editions of AAMA Standards.	In Task Group (as of 10/18/11)	In Task Group (as of 10/18/11)
21	05/25/2006	3280.707	Mary Smith	Carson	4/2008 P&P Report 12/2009 Ballot	R	12/2009 Ballot	START: STOP:	Technical Systems	Heating Equipment: Include provisions for un-vented gas heaters in homes.	COMLETE	

1. MHCC ACTIONS- Refer to MHCC Bylaws for more detail on actions.
A-Accept
APR-Accept In Principle
R-Reject
Required date refers to a Time Sensitive review period that may be required. Refer to MHIA 2000 for more detail.

22	04/03/2007	3280.504(a)	John	Weldy	6/2008 P&P Report 12/2009 Ballot	R	12/2009 Ballot	START: STOP:	Technical Systems	Ventilation: Modify vapor barrier provisions for vented roof cavity spaces.	COMLETE	
23	05/21/2007	3280.607(B)3i	Ross	Kinzler	12/2009 Ballot	APR	12/2009 Ballot	START: STOP:	Technical Systems	Accessibility: Remove requirements for 1 inch extension at water receptor for roll in showers.	COMLETE	
24	11/16/2007	3280.504(b)(1)	Robert	Parks	6/2008 P&P Report 12/2009 Ballot	R	12/2009 Ballot	START: STOP:	Technical Systems	Vapor Barrier: Exempts vapor barriers for certain dry climate regions.	COMLETE	
25	11/28/2007	3280.103	Tom	Neltner	3/2011 Meeting Agenda-SC	Sent to MHCC (APR)	TBD	START: STOP:	Technical Systems	Indoor Air Quality: Require compliance with ASHRAE 62.2.	Sent to MHCC 4-16-12 (Sub rec APR with mod)	Sent to MHCC 4-16-12 (Sub rec APR with mod)
26	11/28/2007	3280.210	Tom	Neltner	6/2008 P&P Report 12/2009 Ballot	APR	12/2009 Ballot	START: STOP:	Technical Structure and Design	Safety: Require installation of CO alarm in home.	COMLETE	
27	11/28/2007	3280.308	Tom	Neltner	6/2008 P&P Report 10/2010 Meeting Agenda	R	10/2010	START: STOP:	Technical Structure and Design	Indoor Air Quality: Require compliance with California standard for formaldehyde emission for plywood/particleboard.	COMLETE	
28	12/03/2007	3280.103(C)(3)	Mike	Moore	4/2011 Meeting Agenda-SC	A	3/1/2011	START: STOP:	Technical Systems	Ventilation: Require Energy Star ventilation system in bathrooms.	Complete	
29	12/03/2007	3280.111	Tom	Neltner	4/2008 P&P Report 11/2010 Ballot	R	11/2010 Ballot	START: STOP:	Technical Structure and Design	Moisture Control: Limit types of wall, ceiling and floor finish material in bathrooms.	COMLETE	
30	12/03/2007	3280.103	Tom	Neltner	3/2011 Meeting Agenda-SC	to MHCC (	TBD	START: STOP:	Technical Systems	Indoor Air Quality: Require compliance with ASHRAE 62.2.	Sent to MHCC 4-16-12 (Sub rec APR with mod)	Sent to MHCC 4-16-12 (Sub rec APR with mod)
31	12/03/2007	3280.308	Tom	Neltner	6/2008 P&P Report 10/2010 Meeting Agenda	R	10/2010	START: STOP:	Technical Structure and Design	Indoor Air Quality: Require compliance with California standard for formaldehyde emission for plywood/particleboard.	COMLETE	
32	12/03/2007	3280.210	Tom	Neltner	6/2008 P&P Report 12/2009 Ballot	APR	12/2009 Ballot	START: STOP:	Technical Structure and Design	Safety: Require installation of CO alarm in home.	COMLETE	
33	12/03/2007	3280.103	Mike	Moore	6/2008	In SC	TBD	START: STOP:	Technical Systems	Indoor Air Quality: Require compliance with ASHRAE 62.2.	In SC	Sent back to subcommittee at 3/2011 meeting
34	12/03/2007	3280.304	Gary D.	Gramp	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update HP standard to 2004 edition.	Complete	Complete
35	12/03/2007	3280.602 and 611 d)	Sidney G.	Becnel	4/2008 P&P Report 12/2009 Ballot	R	12/2009 Ballot	START: STOP:	Technical Systems	Plumbing: Revise criteria for vents and vents systems on plumbing drains.	COMLETE	

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36	12/03/2007	3280.305	David K.	Low	6/2008	n Wind TF	TBD	START: STOP:	Technical Structure and Design	Structural: Update wind design provisions to reflect ASCE 7, 2002 edition and NFPA 501, 2005 edition.	In Task Force	Determined to be assigned to subcommittee at 6/2008 meeting; then assigned to a Task Group at the subcommittee level
37	12/03/2007	3280.306	David K.	Low	6/2008	n Wind TF	TBD	START: STOP:	Technical Structure and Design	Structural: Update wind design provisions to reflect IBC, 2006 edition and IRC, 2006 edition.	In Task Force	Determined to be assigned to subcommittee at 6/2008 meeting; then assigned to a Task Group at the subcommittee level
38	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 1993 edition.	Complete	Complete
39	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 1998 edition.	Complete	Complete
40	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 1996 edition.	Complete	Complete
41	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 1995 edition.	Complete	Complete
42	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 2007 edition.	Complete	Complete
43	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 2007 edition.	Complete	Complete
44	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 2004 edition.	Complete	Complete
45	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 1993 edition.	Complete	Complete
46	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 2007 edition.	Complete	Complete
47	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 2007 edition.	Complete	Complete
48	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 2007 edition.	Complete	Complete
49	12/03/2007	3280.304	Edward L.	Keith	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update APA standard to 1995 edition.	Complete	Complete
50	12/03/2007	3280.308(2)(b)	Edward L.	Keith	4/2008 P&P Report 10/2010 Meeting Agenda	R	10/2011	START: STOP:	Technical Structure and Design	Material: Exempt certain structural panels form certification process.	COMLETE	
51	12/03/2007	3280.4	John G.	Bradfield	3/2011 Meeting	A	3/2011	START: STOP:	General	Referenced Standard: Change organization name form NPA to CPA.	COMLETE	
52	12/03/2007	3280.304(b)(1)	John G.	Bradfield	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update ANSI standard to 2004 edition.	Complete	Complete
53	12/03/2007	3280.304(b)(1)	John G.	Bradfield	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update ANSI standard to 2004 edition.	Complete	Complete
54	12/03/2007	3280.304(b)(1)	John G.	Bradfield	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update ANSI standard to 2006 edition.	Complete	Complete
55	12/03/2007	3280.304(b)(1)	John G.	Bradfield	6/2008	A	12/1/2011	START: STOP:	Technical Structure and Design	Referenced Standard: Update ANSI standard to 1999 edition.	Complete	Complete
56	12/03/2007	3280.304(b)(1)	John G.	Bradfield	6/2008	SC	TBD	START: STOP:	Technical Structure and Design	Referenced Standard: Update ANSI standard to 2002 edition.	Returned to Subcommittee 10/20/11	Returned to subcommittee 10/20/11
57	12/03/2007	3280.506(a)	Michael	Lubliner	10/2010 Meeting Agenda	R	3/2011	START: STOP:	Technical Systems	Energy Conservation: Revise Heat transmission coefficients to reflect IECC values.	COMLETE	

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58	12/03/2007	3280.501(e)	Michael	Lubliner	10/2010 Meeting Agenda	R	3/1/2011	START: STOP:	Technical Systems	Energy Conservation: Revise U values for glazing materials.	Complete	
59	12/03/2007	3280.103	Michael	Lubliner	6/2008 P&P report	Sent to MHCC (APR)	TBD	START: STOP:	Technical Systems	Indoor Air Quality: Require compliance with ASHRAE 62.2.	Sent to MHCC 4-16-12 (Sub rec APR with mod)	Sent to MHCC 4-16-12 (Sub rec APR with mod)
60	12/03/2007	3280.103	Michael	Lubliner	4/2008 P&P Report 12/2009 Ballot	R	12/2009 Ballot	START: STOP:	Technical Systems	Energy Conservation: Require Energy Star appliances / equipment.	COMLETE	
61	12/03/2007	3280.103	Michael	Lubliner	6/2008 P&P report	R	3/2011	START: STOP:	Technical Systems	Energy Conservation: Require Energy Star light bulbs.	Complete	Unable to locate Date to MHCC
62	12/03/2007	3280.103	Michael	Lubliner	4/2008 P&P Report 12/2009 Ballot	R	12/2009 Ballot	START: STOP:	Technical Systems	Energy Conservation: Require Energy Star furnaces, heat pumps and furnaces.	COMLETE	
63	12/03/2007	3280.505	Michael	Lubliner	3/2011 - SC	MHCC tabled	12/1/2011	START: STOP:	Technical Systems	Ventilation: Require management of exterior envelope penetrations to minimize air leakage.	MHCC Tabled 10/20/11 (sub recommends R)	MHCC Tabled 10/20/11 (sub recommends R)
64	12/03/2007	3280.506(b)	Michael	Lubliner	3/2011 SC	MHCC tabled	12/1/2011	START: STOP:	Technical Systems	Energy Conservation: Control insulation compression.	MHCC Tabled 10/20/11 (sub recommends R)	MHCC Tabled 10/20/11 (sub recommends R)
65	12/03/2007	3280.508(e)	Michael	Lubliner	10/2010 Meeting Agenda	R	3/2011	START: STOP:	Technical Systems	Energy Conservation: Control solar gain in glazing.	COMLETE	
66	12/05/2007	3285.403	James P.	Lozier	6/2008 P&P Report 11/2010 Ballot	R	7/2009	START: STOP:	Technical Structure and Design	Structural: Metal interlocking systems for roof systems to mitigate wind loads.	COMLETE	
67	12/05/2007	3280.308(2)(b)	Edward L.	Keith	10/2010 Meeting Agenda	R	11/2010 Ballot	START: STOP:	Technical Structure and Design	Material: Allow structural panel products that meet PS 1 or PS 2 criteria.	COMLETE	
68	12/05/2007	3280.308(2)(b)	Edward L.	Keith	10/2010 Meeting Agenda	R	10/2010	START: STOP:	Technical Structure and Design	Material: Allow structural panel products that meet PS 1 or PS 2 criteria.	COMLETE	
69	09/08/2009	3280.710(d)	Kevin G.	Jewell	4/2010 Agenda 11/2010 Ballot	APR	11/2010 Ballot	START: STOP:	Technical Systems	Ventilation: Venting system terminations 10 feet from air intake.	COMLETE	
70	01/20/2010	3280.703, 3280.707(a)(2)	Donald	Emen	4/1/2010	APR	10/2010	START: STOP:	Technical Systems	Appliances: Require compliance with ANSI and ASHRAE standards for fuel utilization.		Unable to locate Date to MHCC
71	01/20/2010	3280.703, 3280.707(d)(2)	Donald	Emen	3/2011 - SC	A	12/1/2011	START: STOP:	Technical Systems	Appliances: Require compliance with ANSI standards for various ratings of hot water heater measurements.	Complete	Complete
72	01/23/2010	3280.806	Vince	Baclawski	4/2010 Meeting Agenda 11/2010 Ballot	R	11/2010 Ballot	START: STOP:	Technical Systems	Electrical: Require tamper proof electrical outlets consistent with NEC 2005 edition.	Complete	

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73	01/23/2010	3280.304(b)(1)	Gary L.	Heroux	3/2011 meetng agenda	SC	TBD	START: STOP:	Technical Structure and Design	Referenced Standard: Update ANSI standard to 2009 edition.	Returned to Subcommittee 10/20/12	Returned to subcommittee 10/20/12
74	06/09/2010	3280.203(a)(1)(vi)	David A.	Tompos	3/2011 meetng agenda	A	12/1/2011	START: STOP:	Technical Structure and Design	Material: Clarify material thickness and allow vinyl material as an option.	Complete	Complete
75	07/06/2010	3280.715(a)(4)	Michael	Lubliner	11/2010 Ballot	A	11/2010 Ballot	START: STOP:	Technical Systems	Ventilation: Require duct leakage test protocol.	COMLETE	
76	07/27/2010	3280.4 and 3280.210	Lois	Starkey	10/10/2011	APR	10/20/2011	START: STOP:	Technical Structure and Design	Safety: Provide conditions for residential sprinkler installation for correlation with private sector codes for housing.	Complete	Complete
77	11/16/2010	3280.303(b)	Michael	Wade	7/1/2011	bled by MH	TBD	START: STOP:	Technical Structure and Design	Quality Control: Insure that work is completed using approved 'quality assurance manual'.	tabled by sub	tabled by sub
78	11/22/2010	3280.304(a)	Michael	Wade	7/1/2011	A	12/1/2011	START: STOP:	Technical Structure and Design	Material: Moisture content in dimensional lumber. Limit to 19 %.	Complete	Complete
79	4/18/2011	3280.304	Matthew	Dobson	9/30/2011				Technical Structure and Design	Vinyl Siding Issue		
80	9/3/2011	3280.406 (New)	James P.	Van Schoyck	10/1/2012				Structrure & General	Formaldehyde Testing		

OUTSTANDING TOPICS

1. MHCC ACTIONS- Refer to MHCC Bylaws for more detail on actions.
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ATTACHMENT D2

3280HUD- Log #1 Final Action: Reject
(3280.607.1(a))

Submitter: Earl A. Gilson, Rep. Olympic Area Agency on Aging
Recommendation: Add text to read as follows:
Single handle kitchen faucets shall be installed in all kitchen sinks. Single handle lavatory faucets shall be installed in all bathroom lavatories.
Substantiation: Single handle faucets allow greater control and flow than regular two faucet installations. This unit is easier to use and reduces likelihood of hot water burns. This is important for children as well as adults.
Cost Benefit: Cost is negligible.
Committee Meeting Action: Reject
Committee Statement: This is available as an option to the consumer. The additional cost is a concern, and some owners may not want to pay for the feature, thus taking a choice away if it is a mandate. This is not a requirement in stick built single family homes.

Number Eligible to Vote: 19
Ballot Results: Affirmative: 19

3280HUD- Log #2 Final Action: Accept in Principle
(3280.112)

Submitter: Earl A. Gilson, Rep. Olympic Area Agency on Aging
Recommendation: Revise text to read as follows:
Hallways shall have a minimum horizontal dimension of ~~28 inches~~ 30 inches (762 mm) measured from the interior finished surface to the opposite wall.
Substantiation: Hallways provide access to bedrooms, bath and utility areas. Narrow hallways make access for elderly, handicapped persons using walkers or wheelchairs very difficult.
Cost Benefit: Cost is negligible, in-factory assembly requires no additional man-hours.

Committee Meeting Action: Accept in Principle

Revise 3280.112 to read as follows:
"3280.112. Hallways shall have a minimum horizontal dimension of 28 inches measured from the interior finished surface to the interior finished surface of the opposite wall. Hallways for homes 14' wide, as measured from exterior wall to exterior wall, or larger shall have a minimum horizontal dimension of 30 inches (762 mm) measured from the interior finished surface to the opposite wall. When appliances are installed in a laundry area, the measurement shall be from the front of the appliance to the opposite finished interior surface. When appliances are not installed and a laundry area is provided, the area shall have a minimum clear depth of 27 inches in addition to the 28 inches required for passage. In addition, a notice of the available clearance for washer/dryer units shall be posted in the laundry area. Minor protrusions into the minimum hallway width by doorknobs, trim, smoke alarms or light fixtures are permitted.

Committee Statement: The proposed change by the MHCC will facilitate egress.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 12 Negative: 5 Abstain: 1
Ballot Not Returned: 3 KING, SCOTT, WADE
Explanation of Negative:
DESFOSSES: I do not agree with the proposal because it eliminates smaller homes.
LUTTICH: I am unable to support Log #2 and the committee's statement because the statement and the submitter's substantiation did not:
1. Provide substantiation that the Standard's current hallway width is inadequate for egress,
2. Provide substantiation that the proposed revised hallway width would rectify the theoretical egress inadequacy,
3. Provide documentation that the proposed revised hallway width would rectify the access concern for persons using walkers and wheelchairs, and
4. Take into consideration multi-section homes made up of unequal section lengths.

STAMER: : I am voting negative until all accessibility/life safety proposals are thoroughly discussed by the subcommittee and a formal recommendation is submitted to the full MHCC Committee with all back up material such as gurney sizes, wheel chair sizes, etc.
This proposal is for 1 floor width. All floor widths must be investigated.
TOMPOS: The benefit of the additional 2" change in the minimum horizontal dimension of hallways does not outweigh the cost of design changes and third party plan review costs. This change may also limit floor plan options and room sizes for the consumer. Currently the consumer has the option to purchase a home with the wider hallways at no added cost to the industry.
SANTANA: I voted against this proposal because there was no substantiation, evidence or arguments provided that addressed egress. The proposal in its original form was intended to address accessibility not egress. This proposal is using egress as a euphemism for accessibility. The minutes reflect that all of the substantiation was based on accessibility issues and concerns. The HUD code provides minimum safety and construction standards, accessibility issues should not be mandated in a building code. Proof of this can be found in the 2009 IRC, the IRC only requires residential buildings with 4 or more dwellings to consider accessible construction.
Source: 09 IRC §R322
Explanation of Abstention:
POGGIONE: I believe the industry is already complying with this proposal and it is not necessary for that reason.
Comment on Affirmative:
ANDERSON: : My affirmative vote is a reluctant vote and is only given because it is the best we can do for the moment

given the circumstances. What is disheartening is that after contacting the Clayton Home and Champion Home dealerships in Salt Lake City and discovering that they don't offer any models without 36" hallway widths.
It was further disheartening to learn that the salespersons at both establishments would strongly discourage any consumer from anything less than that for the following reasons:

1. Functionality
2. Resale of the Home in the Future
3. Safety
4. Future Accessibility

What bothers me is that the sales and marketing people who represent these manufacturers understand what is going on; however, the manufacturer's representatives who sit on this committee don't.
We deal with immigrants who, when they purchase a broken down pre-HUD home that is ready for the landfill from a less than reputable dealer, think they've bought the Taj Mahal – compared to what they lived in before. Those of us who are used to a higher standard know better. Do we want to leave the choice of hallway widths somebody who is completely unaware? I don't think so!

3280HUD- Log #3 Final Action: Accept in Principle
(3280.105.2(b))

Submitter: Earl A. Gilson, Rep. Olympic Area Agency on Aging
Recommendation: Revise text to read as follows:
All exterior ~~doors~~ swinging doors shall provide a minimum ~~28 inch wide by 74 inch high clear~~ opening 32 inch wide (788 mm) by 74 inch high clear opening. All exterior sliding glass doors shall provide a minimum ~~28 inch wide by 72 inch high clear opening~~ 32 inch wide (788 mm) by 72 inch high clear opening.
Substantiation: There are several million manufactured homes in the United States today. More than 60 percent are owned/occupied by senior citizens (60 years or older). Thousands of these persons have restricted mobility due to strokes, accidents, or other injury or infirmity.
Cost Benefit: Cost of installing larger doors will not exceed $15.00 (fifteen dollars) per door, if installed at time of in-factory assembly.

Committee Meeting Action: Accept in Principle
Revise item (2) by adding a new sentence as follows.

(2) All exterior swinging doors shall provide a minimum 28 inch wide by 74 inch high clear opening. All exterior sliding glass doors shall provide a minimum 28 inch wide by 72 inch high clear opening. One exterior door shall provide a minimum opening 32" wide by 74" high clear opening.

Committee Statement: Rather than mandating this width for all exterior doors, the MHCC has specified the width for one door only. The MHCC also notes that the cost justification should be modified. The cost of installing larger doors will range from $0-$100 per door to the dealer, if installed during factory assembly; plus a onetime design and review fee per model of $150-300.

3280HUD- Log #4 Final Action: Accept
(3280.804(m) (New))

Submitter: Brendan A. Foley, EATON CUTLER-HAMMER
Recommendation: Add a new paragraph (m):
Bedrooms of manufactured homes. All branch circuits that supply 125-volt, single-phase, 15- and 20-ampere outlets installed in bedrooms of manufactured homes shall be protected by arc-fault circuit interrupter(s).
Substantiation: 210.12 of the National Electrical Code, NFPA No. 70-2002 requires arc-fault circuit interrupter protection for the bedrooms of dwelling units. Further, 550.25 of NFPA No. 70-2002 requires arc-fault circuit interrupter protection for the bedrooms of mobile homes and manufactured homes. In a companion proposal to the MHCC, Cutler-Hammer has provided the AFCI definition from the NEC. AFCIs are readily available from circuit breaker manufacturers, and during the past ear, millions of AFCIs have been installed in dwelling unit load-centers. These devices combine the wire-protection features of conventional circuit breakers with specific protection against arcing faults. Thus arcing events, with their associated fire initiation risk, are detected and interrupted under circumstances that would not trip a conventional circuit breaker. The cost differential between a conventional residential circuit breaker and a circuit breaker incorporating AFCI technology is about $20, and a recent CPSC cost-benefit analysis (1) shows that the benefits exceed the costs. further, since circuit breakers with AFCI are readily accessible at the load center, the additional inspection cost is negligible. 550.25 was added to the National Electrical Code because it was recognized that the electrical distribution system of manufactured homes, like other dwelling units, was a primary source of fires. Most recently, this has been confirmed in the NFPA Report “Manufactured Home Fires in the U.S.” (2). That report lists the “Fires by Cause” for an annual average during the period 1989-1998. Electrical distribution fires were the leading cause (17 percent) of fires in manufactured homes. Cutler-Hammer urges the MHCC to include the wording from NEC NFPA No. 70-2002 in 3280.804. Manufactured homes have a greater need for fire protection than other types of dwelling unit. A Federal Emergency Management Agency publication entitled “Fire in the United States 1987-1996” (3) states that “Manufactured Housing, separated from the dwelling category, has a much greater share of fire deaths (11 percent) relative to its share of fires (4 percent). Deaths per fire are approximately twice as high for manufactured housing as for other dwellings”. Although this FEMA report does not separate out the fires of electric origin, it will be apparent that reductions in the number of fires will reduce the overall death toll. A more recent NFPA report (4) shows an average annual number of 5200 fires in manufactured homes where the form of heat of ignition was due to electrical equipment arcing or overload. This is comparable to the fire rates in dwelling units with due regard to the relative numbers of manufactured homes. This same report shows that bedrooms are the location for the highest percentage (19 percent) of electrical fires. The arc-fault circuit interrupter is available and is deemed effective by the United States Fire Marshals
(NASFM), Underwriters Laboratories (UL) and the Electrical Safety Foundation International (ESFI). Adding this requirement to 24 CFR Part 3280 would ensure that people living in manufactured homes would benefit from this enhanced fire-protection with a resulting decrease in property losses and, most importantly, decreases in burn-injuries and deaths.
(1) “Economic Considerations - AFCI Replacements”, letter dated 3/10/2003 from William H. King of CPSC (available on the CPSC website www.cpsc.gov)
(2) “Manufactured Home Fires in the U.S.”, NFPA Report, John R. Hall Jr., April 2001.
(3) “Fire in the United States 1987-1996”, Eleventh Edition, Federal Emergency Management Agency, FA-173/August 1999.
(4) “NFPA Statistics for Manufactured Homes”, K. Rohr, NFPA, 2003.
Note: Supporting material is available for review at NFPA Headquarters.
Cost Benefit: No data provided.
Committee Meeting Action: Accept
Committee Statement: The MHCC agrees with the substantiation.

Number Eligible to Vote: 19
Ballot Results: Affirmative: 19

3280HUD- Log #5 Final Action: Accept
(3280.802(42) (New))

Submitter: Brendan A. Foley, EATON CUTLER-HAMMER
Recommendation: Add a new definition (42) for subsequent alphabetic inclusion:
Arc-fault circuit interrupter. An arc-fault circuit interrupter is a device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when an arc fault is detected.
Substantiation: 210.12 (A) of the National Electrical Code, NFPA No. 70-2002 defines an arc-fault circuit interrupter. 210-12(B) then requires arc-fault circuit interrupter protection for the bedrooms of dwelling units. similarly 550.25 of NFPA No. 70-2002 deals with arc-fault protection for mobile homes and manufactured homes. 550.25 (A) defines an arc-fault circuit interrupter by referencing 210.12(A), and 550.25(B) requires arc-fault circuit interrupter protection for the bedrooms of mobile homes and manufactured homes. This proposal copies the arc-fault circuit interrupter definition from 210.12(a) into the definitions section of 24 CFR Part 3280. This is needed because, in a companion proposal to 3280.804, Cutler-Hammer has proposed that all branch circuits that supply 125-volt, single phase, 15-and 20-ampere outlets installed in bedrooms of manufactured homes shall be protected by arc fault circuit interrupter(s).
Cutler-Hammer urges the MHCC to include the definition from NEC NFPA No. 70-2002 in 3280.802. Manufactured homes have a greater need fire protection than other types of dwelling units. A Federal Emergency Management Agency publication entitled “Fire in the United States 1987-1996” (1) states that “Manufactured Housing, separated from the dwelling category, has a much greater share of fire deaths (11 percent) relative to its share of fires (4 percent). Deaths per fire are approximately twice as high for manufactured housing as for other dwellings”. Although this FEMA report does not separate out the fires of electrical origin, it will be apparent that reduction in the number of fires will reduce the overall death toll. A more recent NFPA report (2) shows an average annual number of 5200 fires in manufactured homes where the form of heat of ignition was due to electrical equipment arcing or overload. This is comparable to the fire rates in dwelling units with due regard to the relative numbers of manufactured homes. The arc-fault circuit interrupter is available and is deemed effective by the United States Fire Administration (USFA), the Consumer Product Safety Commission (CPSC), the National Association of State Fire Marshals (NASFM), Underwriters Laboratories (UL) and the Electrical Safety Foundation International (ESFI). Further, a CPSC cost/ benefit analysis (3) shows that AFCIs are cost effective. Adding the definition in 24 CFR Part 3280. 802 and the location requirement in 3280.804 will ensure that people living in manufactured homes benefit from this enhanced fire-protection with a resulting decrease in property losses and, most importantly, decreases in burn-injuries and deaths.
(1) “Fire in the United States 1987-1996”, Eleventh Edition, Federal Emergency Management Agency, FA-173/August 1999.
(2) “NFPA Statistics for Manufactured Homes”, K. Rohr, NFPA, 2003.
(3) “Economic Considerations - AFCI Replacements”, letter dated 3/10/2003 from William H. King of CPSC (available on the CPSC website www.cpsc.gov).
Note: Supporting material is available for review at NFPA Headquarters.
Cost Benefit: No data provided.
Committee Meeting Action: Accept
Committee Statement: The MHCC agrees with the substantiation.

Number Eligible to Vote: 19
Ballot Results: Affirmative: 19

3280HUD- Log #6 Final Action: Accept in Principle
(3280.801(a)(b))

Submitter: Brendan A. Foley, EATON CUTLER-HAMMER
Recommendation: In each of these paragraphs, change the reference to the National Electrical Code from NFPA No. 70-1993 to NFPA No. 70-2002. Thus:
NFPA No. 70~~-1993~~ 2002
Substantiation: Cutler-Hammer considers that 550.25 of NFPA No. 70-2002 should be recognized in the Manufactured Housing code. This clause requires Arc Fault Circuit Interrupters that provide enhanced fire protection for bedroom circuits. Cutler-Hammer has submitted other proposals to reproduce the wording of 550.25 in 24 CFR Part 3280. However, an alternative would be to update the references to NFPA No. 70 in the scope from NFPA No. 70-1993 to NFPA no. 70-2002. Such an update would be consistent with the article entitled "Manufactured Housing Safety. congress speeds up the process for updating manufactured housing safety standards" that appeared in the March/April 2002 NFPA Journal. In particular, such an update would provide the bedroom circuits of manufactured homes with the same enhanced fire protection as the bedroom circuits of other dwelling units. AFCIs are readily available from circuit breaker manufacturers, and during the past year, millions of AFCEs have been installed in dwelling unit load-centers. These devices combine the wire-protection features of conventional circuit breakers with specific protection against arcing faults. Thus arcing events, with their associated fire initiation risk, are detected and interrupted under circumstances that would not trip a conventional circuit breaker. The cost differential between a conventional residential circuit breaker and a circuit breaker incorporating AFCI technology in about $20, and a recent CPSC cost-benefit analysis (1) shows that the benefits exceed the costs. Further, since circuit breakers with AFCI are readily accessible at the load center, the additional inspection cost is negligible. 550.25 was added to the National Electrical Code because it was recognized that the electrical distribution system of manufactured homes, like other dwelling units, was a primary source of fires. Most recently, this has been confirmed n the NFPA Report "Manufactured Home Fires in the U.S." (2). That report lists the "Fires by Cause" for an annual average during the period 1989-1998. Electrical distribution fires were the leading cause (17 percent) of fires in manufactured homes. Cutler-Hammer urges the NHCC to include AFCI protection by broadening the scope in 3280.801 to reference the requirements of NFPA No. 70-2002. Manufactured homes have a greater need for fire protection than other dwelling units. A Federal Emergency Management Agency publication entitled "Fire in the United States 1987-1996" (3) states that "Manufactured Housing, separated from the dwelling category, has a much greater share of fire deaths (11 percent) relative to its share (4 percent). Deaths per fire are approximately twice as high for manufactured housing as for other dwellings". Therefore the need for fire protection in Manufactured Housing is even greater than for other types of dwelling units. Although this FEMA report does not separate out the fires of electrical origin, it will be apparent that reductions in the number of fires will reduce the overall death toll. A more recent NFPA report (4) shows an average annual number of 5200 fires in manufactured homes where the form of heat of ignition was due to electrical equipment arcing or overload. This is comparable to the fire rates in dwelling units with due regard to the relative numbers of manufactured homes. This same report shows that bedrooms are the locations for the highest percentage (19 percent) of electrical fires. The arc-fault circuit interrupter is available and is deemed effective by the United States Fire Administration (USFA), the Consumer Product Safety Commission (CPSC, the National Association of State Fire Marshals (NASFM), Underwriters Laboratories (UL) and the Electrical Safety Foundation International (ESFI0. Including this requirement within the scope of 24 CFR Part 3280 would ensure that people living in manufactured homes would benefit from this enhanced fire-protection with a resulting decrease in property losses and, most importantly, decreases in burn-injuries and deaths.
(1) "Economic Considerations - AFCI Replacements", letter dated 3/10/2003 from William H. King of CPSC (available on the CPSC website www.cpsc.gov).
(2) "Manufactured Homes Fires in the U.S.", NFPA Report, John R. Hall Jr., April 2001.
(3) "Fire in the United States 1987-1996". Eleventh Edition, Federal Emergency Management Agency, FA-173/August 1999.
(4) "NFPA Statistics for Manufactured Homes", K. Rohr, NFPA, 2003.
Note: Supporting material is available for review at NFPA Headquarters.
Cost Benefit: No data provided.
Committee Meeting Action: Accept in Principle
Committee Statement: The MHCC notes that a separate change to update CFR 3280 did propose an update to CFR 3280 to adopt the 2002 NEC. NOTE: According to review of the recent MHCC ballots, there is no record of the 2002 NEC being voted on by MHCC. The MHCC Standards SC says the AO missed the change in Chapter 14-NFPA 501 did make the change, but it was never included in MHCC ballot. NEED TO RESOLVE by balloting a change to make the

update (NFPA 70-2002 ed) universal through out Part 3280. See Log # MHCC 1.

Number Eligible to Vote: 19
Ballot Results: Affirmative: 19

3280HUD- Log #7 Final Action: Reject
(3280.804(m) (New))

Submitter: Don Bliss, National Association of State Fire Marshals / Rep. Natinal Association of State Fire Marshals, James Burns

Recommendation: Add a new paragraph (m):

All branch circuits that supply 125-volt, single-phase, 15- and 20-ampere outlets installed in manufactured homes shall be protected by an arc-fault circuit interrupter(s) listed to provide protection of the entire branch circuit.

Substantiation: Section 210.12 of the National Electrical Code, NFPA No.70-2002 requires arc-fault circuit interrupter protection for the bedrooms of dwelling units. Further, 550.25 of NFPA No. 70-2002 requires arc-fault circuit interrupter protection for the bedrooms of mobile homes and manufactured homes. The National Association of State Fire Marshals (NASFM) position is that justification exists to expand the AFCI protection for manufactured homes beyond the requirements of both 210.2 and 550.25. The goal of this proposal is to provide the protection afforded by AFCIs to all 15- and 20-amprere circuits in manufactured homes. In 2002, the NASFM Science Advisory committee undertook an inquiry and report (1) on the effectiveness of AFCI's in reducing the incidence of electrical fires. The conclusion of the investigation was that AFCI's are "the most promising fire protection technology since the advent of the smoke detector."

AFCI's are readily available from circuit breaker manufacturers, and millions of AFCIs have been installed in dwelling units throughout the United States. In addition to providing the standard protection features of conventional circuit breakers, AFCI's utilize sensitive electronics to detect extremely dangerous arcing faults that would not trip conventional circuit breakers.

Recognizing the benefits of AFCI, NFPA added the requirement for AFCI's in the 1999 National Electrical Code for bedroom receptacle circuits, and expanded it in the 2002 NEC for all bedroom outlet circuits. However, the AFCI code requirements have not yet been required for Manufactured Homes despite the inclusion in 550.25 f NFPA-70-2002. Given the grave Manufactured Housing fire statistics below, NASFM strongly endorses the rapid inclusion of AFCI technology in the Manufactured Housing Code.

Section 550.25 was added to the National Electrical Code because it was recognized that the electrical distribution system of manufactured homes was a primary source of fires. Most recently, this has been confirmed in the NFPA Report "Manufactured Home Fires in the U.S." (2). This report lists the annual average "Fires by Cause" during the period 1989-1998. Electrical distribution fires were identified as the leading causes of fires (17 percent). However, the present 550.25 wording only deals with bedroom circuits. For manufactured homes, these circuits (3) are indeed associated with a significant percentage (19 percent) of electrical distribution fires. But living rooms, kitchens, dens, basements etc. account for the remaining 81 percent of electrical distribution fires and these circuits must also be protected. Providing AFCI protection to only the bedroom circuits only partially addresses this serious issue and the statistics clearly call for more aggressive use of this technology.

The cost differential between a conventional residential circuit breaker and a circuit breaker incorporating AFCI technology is about $20, and a recent CPSC cost/benefit analysis (4) shows that the benefits exceed the costs. Further, since circuit breakers with AFCI are readily accessible at the load center, the additional inspection cost is negligible.

manufactured homes have a greater need for fire protection than other types of dwelling units. A Federal Emergency Management Agency (FEMA) publication entitled "Fire in the United States 1987-1996: (5) states that "Manufactured Housing, separated from the dwelling category, has a much greater share of fire deaths (11 percent) relative to its share of fires (4 percent). Deaths per fire are approximately twice as high for manufactured housing as for other dwellings". Although this FEMA report does not separate out the fires of electrical origin, it will be apparent that reductions in the number of fires will reduce the overall death toll.

The recent NFPA report (3) shows an average annual number of 5200 fires in manufactured homes where the form of heat of ignition was due to electrical equipment arcing or overload. This is comparable to the fire rates in dwelling units with due regard to the relative numbers of manufactured homes. In addition to the NASFM Science Advisory Committee findings, arc-fault circuit interrupters have been deemed effective by the United States Fire Administration (USFA), the Consumer Product Safety Commission (CPSC), Underwriters Laboratories (UL) and the Electrical Safety foundation International (ESFI). NASFM urges the MHCC to expand this requirement to 24 CFR Part 3280 for all circuits. This will maximize the benefit of this fire-prevention technology for people living in manufactured homes. There will be reduction in property losses and, most importantly, there will be a decrease in burn-injuries and deaths.

(1) "AFCI Inquiry and Report", prepared by the Consumer Product Safety Task Force of the National Association of State Fire Marshals, August 1, 2002. Available on the NASFM website at www.firemarshal.org/issues/home/electrical_fires.html

(2) "Manufactured Home Fires in the U.S.", NFPA Report, John R. Hall jr., April 2001

(3) “NFPA Statistics for Manufactured Homes”, K. Rohr, NFPA, 2003

(4) “Economic Considerations - AFCI Replacements”, letter dated 3/10/2003 from William H. King of CPSC (available on the CPSC website www.cpsc.gov).

(5) “Fire in the United States 1987-1996”, Eleventh Edition, Federal Emergency Management Agency, FA-173/August 1999.

Cost Benefit: The cost differential between a conventional residential circuit breaker and a circuit breaker incorporating AFCI technology is about $20, and a recent CPSC cost/benefit analysis (4) shows that the benefits exceed the costs. Further, since circuit breakers with AFCI are readily accessible at the load center, the additional inspection cost is negligible.

Committee Meeting Action: Reject

Committee Statement: This proposal exceeds the requirements in the NEC for the use of AFCI technology. AFCI’s are only mandated on bedroom circuits. As proposed here, it would extend use of the devices to all circuits, thus being inconsistent with NFPA 70, stick built homes, and modular homes.

Number Eligible to Vote: 19

Ballot Results: Affirmative: 19

3280HUD- Log #8 Final Action: Reject
(R.3280.309.1, R309.1.1, R309.2, R309.3 & E 3802.2)

Submitter: Daniel/Jason/Charlie Spartz, WBV Development
Recommendation: Add text to read as follows:

IRC 2000

R309.1 Opening protection. Openings from private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches (35mm) thick, or 20-minute fire-rated doors.

R309.1.1 Duct penetration. Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage (0.48 mm) sheet steel or other approved materials and shall have no openings into the garage.

R309.2 Separation required. The garage shall be separated from the residence and its attic area by not less than 1/2-inch (12.7mm) gypsum board applied to the garage side. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than _1/2-inch (12.7 mm) gypsum board or equivalent.

R309.3 Floor surface. Garage floor surfaces shall be of approved noncombustible materials. The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

E3802.2 Garage receptacles. All 125-volt, single-phase, 15- or 20-ampere receptacles installed in garages and grade-level portions of unfinished accessory buildings used for storage or work areas shall have ground-fault circuit-interrupter protection for personnel.

Exceptions:

1. Receptacles that are not readily accessible.
2. A single receptacle or a duplex receptacle for two appliances located within dedicated space for each appliance that in normal use is not easily moved from one place to another, and that is cord- and plug-connected.

(However, this may be redundant in that it is probably covered by CFR 24 Sec. 3280.806.3b)

New Material We Propose

Garage/Carport Performance Standards. All ceiling, roof, and wall components shall be built comparably sufficient to meet or exceed the performance standards set forth for the living area of a HUD-Code home. All portions of the garage wall that may come in contact with foundation system or stabilizing devices should be constructed of suitably weather, rot, and insect resistant material.

Garage Retransportability. Any steel portion of the temporary transportation supports to be removed during installation shall remain present in the vicinity of the home at all times to ensure the future mobility of the garage with the home.

Substantiation: The problem the entire HUD-Code is attempting to address is the lack of safe affordable housing in America. We believe the acceptance of these standards to permit the construction of a HUD-Code factory-built garage will be a monumental step toward addressing this problem. As we all know, HUD-Code homes have evolved over the past decades as the consumer has constantly redefined what they expect in an "affordable" home. Now and likely more so in the future, consumers prefer their homes have an attached garage. Unfortunately, due to the absence in the HUD-Code of guidelines concerning factory-built garage construction, all garages attached to HUD-Code homes have been site-built.

In our experienced opinion, a factory-built, HUD-Code garage would certainly be much safer and amount to a cost savings to the consumer of $5000-$7000 over the site-built alternative. A standardized, factory-built garage would be safer, more attractive, easier to install, less expensive, and in all ways, far more desirable than the site-built alternative.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Reject

Committee Statement: This proposal was not in the proper format per the guidelines of the proposal form. It did not cite any specific section(s) of part 3280; it did not address any of the criteria that is already partially covered in Part 3280; it did not address any of the criteria that is already partially covered in the proposed installation standard that has been prepared by the MHCC. In addition, the MHCC notes that the proposal is suggesting use of language that is from a copyright protected work of the International Code Council.

Number Eligible to Vote: 19

Ballot Results: Affirmative: 19

3280HUD- Log #9 Final Action: Reject
(3280.101)

Submitter: Earl A. Gilson, O3A Advisory Committee
Recommendation: Revise text to read as follows:
...~~determining a safe & healthful environment~~
...assuring a safe, healthful, accessible housing unit for the homeowner/occupant.
Substantiation: This proposed revision addresses the need for improved accessibility for owners/occupants and supports existing regulations and recommendations as listed in Older Americans Act and Americans with Disabilities Act.
Committee Meeting Action: Reject
Committee Statement: The MHCC believes that while accessibility and accessible homes have to be addressed, they do not agree that a change to the overall scope of the Federal MHCSS is in order to accomplish that. "Accessible" can have a much larger meaning for various elements relating to access to the home as well as barrier free use/accessibility within the home itself.

3280HUD- Log #10 Final Action: Reject
(3280.104 Ceiling Heights)

Submitter: Earl A. Gilson, O3A Advisory Committee
Recommendation: Revise text to read as follows:
Every habitable room and bathroom shall have a minimum ceiling height of not less than 7~~ ft, 0 in. for a minimum of 50 percent of the room's floor area. The remaining area may have a ceiling with a minimum height 5 ft, 0 in. Minimum height under dropped duets, beams, etc. shall be 6 ft., 4 in.~~
Substantiation: Room, bathroom utility room, hallway, and egress door hallway on ground level shall have a minimum ceiling height not less than 7 ft. 6 in. (2.25 m).
Committee Meeting Action: Reject
Committee Statement: The committee does not believe that the proposed change adds or increases safety or the level of usability of the standard.

3280HUD- Log #11 Final Action: Reject
(3280.105.B(2))

Submitter: Earl A. Gilson, O3A Advisory Committee
Recommendation: Revise text as follows:
...~~minimum 28 in. wide by 74 in. high clear opening.~~ All exterior sliding glass doors shall provide a minimum ~~28 in. wide~~ by 72 in. high clear opening.
Add text to read as follows:
...minimum 32 in. wide by 74 in. high clear opening. All exterior sliding glass doors shall provide a minimum 32 in. wide by 72 in. high clear opening.
Substantiation: 28 in. doors interfere with entrance of persons and equipment, i.e., furniture, handicapped gear, wheel chairs and walkers.
Wider doors allow greater ease of entry and exit for persons and equipment. Quicker egress is possible in a crisis or emergency. The Older Americans Act and Americans with disabilities Act speak to this issue.
Committee Meeting Action: Reject
Committee Statement: The action taken on 3280 Log # 3 has addressed the desire to provide one exterior door that has a minimum width of 32 inches. This proposal would have carried that provision to all exterior sliding doors.

3280HUD- Log #12 Final Action: Reject
(3280.607)

Submitter: Earl A. Gilson, O3A Advisory Committee
Recommendation: Add at end of paragraph:
All cold water and heated water faucets in bathroom sink and kitchen sink shall be lever-handle faucets.
Substantiation: Likelihood of burning is common in sinks having individual knob handle valves. Persons with arthritic limitations have difficulty controlling temperature/flow volume.
This proposal eliminates or reduces burn danger. The lever handle faucet is much easier to control temperature and flow volume and reduces splashing. This is a real aid to arthritic, elderly, or handicapped persons.
This proposed revision supports existing regulations and recommendations as listed in Older Americans Act and Americans with Disabilities Act.
Committee Meeting Action: Reject
Committee Statement: Faucet handles and designs are a consumer preference and choice. This item can be readily specified for their new home or replaced by the homeowner in an existing home.

3280HUD- Log #13 Final Action: Accept
(3280.710)

Submitter: Dana C. Roberts, State of Oregon
Recommendation: Add text to read as follows:
*Exception: Where installed in accordance with the manufacturer's installation instructions, and where mechanical or other natural ventilation is otherwise provided, listed and labeled ductless range hoods or charcoal venting systems shall not be required to discharge to the outdoors.
Substantiation: Your assistance please. It has come to my attention that MH is under a HUD constraint that is probably both a) overburdensome and b) out of date with current overall home building practices (and puts MH in a less competitive posture in comparison to site built codes). The particular constraint has to do with over the range venting.
It is my understanding that the range venting has to be connected with an external venting system. While exterior venting is obviously ideal and probably preferred in certain cases, there are a multitude of applications occurring in the site built realm that allow for the use of charcoal venting systems, which obviously would allow for an increase in design application, allowing:
a. placement of cooking modules in Kitchens that could be anywhere within the home's footprint (i.e. instead of having to limit placement to allow ease of on-site completion of venting through e.g. AC roof portions homes)
b. an improvement of aesthetically pleasing interior design to go with that placement above (i.e. no vent stacks to the roof that would interfere with interior visual elements)
c. an improvement of aesthetically pleasing exterior design to go with that placement above (i.e. no interference between venting and exterior dormers).
I would ask for your assistance in directing this information forward to the right parties. Why reinvent the wheel when you can go with the flow of what has been a generally approved practice in the site building world.
There was a general appeal sometime in the recent past for ideas on updating the codes. Here's another idea if it has not already been mentioned.
Note: Supporting material is available for review at NFPA Headquarters.

This is not original material; its reference/source is as follows:
2000 International Residential Code
Committee Meeting Action: Accept
Number Eligible to Vote: 19
Ballot Results: Affirmative: 19

3280HUD- Log #15 Final Action: Reject
(Chapter 5, 6 & 7)

Submitter: Al Preusch, Foundation Works Inc
Recommendation: As developed by the MHCC, the Model Installation proposal provides;
"...all the requirements necessary to support one method of installation and provides direction for utilizing other methods (emphasis added) when they equal or exceed the model's method and were developed through engineering and national listing approvals."
Also, we believe that concurrently, the HUD 1996 manual for permanent foundations needs updating for current technologies and identification of a method that is tailored specifically for Manufactured Housing, that provides a reliable and much more affordable option than most are using to meet those definitions. This includes, most importantly, the financing industry that is looking for directions as to what foundations are permanent foundations and secure their "investments" for the life of the loan.
Also, we think that MHCC is the appropriate body to review, analyze and make recommendations regarding these matters as it can provide HUD in updating the 1996 Guide.
More specifically, the appendix we propose to help in the developing (with the assistance our technology development partner - Golder, see below) will cover the following:
1. Methods for site preparation.
2. Design and testing criteria for the foundation system, both with and without perimeter walls, and
3. Installation procedures required for the above.

Substantiation: FoundationWorks believes that there is a great opportunity, with MHCC's assistance, to both improve the quality of the foundations and the related homes for manufactured housing, and, most particularly, for those homes requiring "permanent" foundations (which most homes now require due to the homebuyer funding needs). Not only is this opportunigy to improve the quality of the homes through better and more appropriate foundations, but also to substantially reduce the all-inclusive cost of the homes (see www.foundationworksinc.com/pages/customerdwnlds.html, and click through to "The FoundationWorks Cost Advantage" PDF file). This applies not only to new homes, but also to the 2 million or so existing homes that will need to be upgraded to a "permanent" foundation status in the next few years.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Reject
Committee Statement: No specific language was offered by the proponent. The concepts addressed might be considered under an AC approach but as written, there is nothing that the MHCC can offer with this concept.

3280HUD- Log #16 Final Action: Accept in Principle

(3280.801, 803,(a) (b), 803(k)(1), k(3), k(3) (ii),K(3)(iii), 804, (a)(k), 806, 3(iv) 806(a)(2), 808(a)(m)(g))

Submitter: Kirk Schirra, Eaton Cutler-Hammer

Recommendation: In each of these paragraphs, change the reference to the National Electrical Code from NFPA 70-1993 to NFPA 70-2005.

Thus: NFPA 70-~~1993~~ 2005

Substantiation: 24 CFR Part 280 presently references the 1993 edition of the National Electrical Code, NFPA 70-1993. With reference to the article entitled "Manufactured Housing Safety. Congress speeds up the process for updating manufactured housing safety standards" that appeared int he March/April 2002 NFPA Journal, the Manufactured Housing consensus Committee has the ability to hasten the regulatory process. Cutler-Hammer considers that the electrical-fire-safety of manufactured housing would be improved by referencing NFPA 70-2005 from 3280.808 "Wiring Methods and materials". The NFPA Report "Overview of Fires in Manufactured Housing" by John Hall, April 2001, reports the "Fire by Cause" for an annual average during the period 1989-1998. Electrical distribution fires were the leading cause (17%) of fires in manufactured homes, and Cutler-Hammer considers that updating 3280.808 to NFPA 70-2005, with the benefit of new techniques and technologies, would reduce these fires and their associated life, injury and property losses.

A cost-Benefit Analysis has been completed by the Consumer Product Safety Commission in a report titled "Economic Considerations - AFCI Replacements" which has been provided with this proposal. The report looks at protection of the whole dwelling while current National Electric Code only requires bedroom circuits. The resulting additional cost of each dwelling unit would be $15-20 more per circuit for two circuits resulting in total cost increases of $30-40 per unit.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Accept in Principle

This action was achieved in previous action by the MHCC.

Committee Statement: The MHCC previously recommended and HUD accepted a recommendation that the 2005 edition of the NEC should be referenced and used in the MHCSS. This change was enacted in 2007.

3280HUD- Log #17 Final Action: Accept in Principle
(3280.802(42))

Submitter: Kirk Schirra, Eaton Cutler-Hammer
Recommendation: Add a new definition (42) for subsequent alphabetic inclusion:
Arc-fault circuit interrupter. An arc-fault circuit interrupter is a device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when arc fault is detected.
Substantiation: 210.12(A) of the national Electrical Code, NFPA 70-2002 defines an arc-fault circuit interrupter. 210-12(B) then requires arc-fault circuit interrupter protection for the bedrooms of dwelling units. Similarly 550.25 of NFPA 70-2002 deals with arc-fault protection for mobile homes and manufactured home. 550.25 (A) defines an arc-fault circuit interrupter by referencing 210.12(A), and 550.25(B) requires arc-fault circuit interrupter protection for the bedrooms of mobile homes and manufactured homes. The present proposal copies the arc-fault circuit interrupter definition from 210.12(A) into the definitions section of 24 CFR Part 3280. This is needed because, in a companion proposal to 3280.804, Cutler-Hammer has proposed that all branch circuits that supply 125-volt, single phase, 15- and 20-ampere outlets installed in bedrooms of manufactured homes shall be protected by arc-fault circuit interrupter(s). Cutler-Hammer urges the MHCC to include the definition from NFPA 70-2002 in 3280.802. For manufactured homes, as with swelling units, there is a real need for fire protection. The arc-fault circuit interrupter is available and is effective as evident from the support of organizations such as the Consumer Product Safety Commission, the National Association of Fire Marshals, and Underwriters Laboratories. Adding the definition in 24 CFR Part 3280.802 and the location requirement in 3280.804 will ensure that people living in manufactured homes benefit from this enhanced fire-protection.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Accept in Principle
A previous action by the MHCC required AFCIs to be provided under certain conditions. In addition, by mandatory reference to NFPA 70, 2005 edition, the committee sees no need to repeat a definition that is already contained in NFPA 70.
Committee Statement: See MHCC Actions on 3280 Log #4 and 3280 Log #16.

3280HUD- Log #18 Final Action: Reject
(3280.804(M))

Submitter: Kirk Schirra, Eaton Cutler-Hammer
Recommendation: Add a new paragraph (m):
All branch circuits that supply 125-volt, single-phase, 15- and 20-ampere outlets installed in manufactured homes shall be protected by an arc-fault circuit interrupter(s) listed to provide protection of the entire branch circuit.
Substantiation: 210.12 of the National Electrical Code, NFPA 70-2002 requires arc-fault circuit interrupter protection for the bedrooms of dwelling units. Further, 550.25 of NFPA 70-2002 requires arc-fault interrupter protection for the bedrooms of mobile homes and manufactured homes. The present proposal expands the use of AFCIs to the protection of all 15- and 20-ampere circuits in manufactured homes. The present proposal expands the use of AFCIs to the protection of all 15- and 20-ampere circuits in manufactured homes. In a companion proposal, Cutler-Hammer has provided the AFCI definition from the NEC. AFCIs are readily available from circuit breaker manufacturers, and during the past year, millions of AFCIs have been installed in dwelling unit load-centers. These devices combine the wire-protection features of conventional circuit breakers with specific protection against arcing faults. Thus arcing events, with their associated fire initiation risk, are detected and interrupted under circumstances that would not trip a conventional circuit breaker, 550.25 was added to the National Electrical Code because it was recognized that the electrical distribution system of manufactured homes, like dwelling units, was a primary source of fires. Most recently, this has been confirmed in the NFPA Report “Overview of Fires in Manufactured Housing” by John Hall, April 2001. That report lists the “Fires by Cause” for an annual average during the period 1989-1998. Electrical distribution fires were the leading cause (17%) of fires in manufactured homes.

The present 550.25 wording only deals with bedroom circuits. These circuits are indeed associated with a high percentage of electric distribution fires. However, living rooms and kitchens have comparable likelihood of electrical distribution fires and these circuits should also be protected. For manufactured homes, as with dwelling units, there is a real need for fire protection. The arc-fault circuit interrupter is available and is effective as evident from the support of organizations such as the Consumer Product Safety Commission, the National Association of Fire Marshals, and Underwriters Laboratories. Cutler-Hammer urges the MHCC to adding this requirement to 24 CFR Part 3280 for all circuits. This will maximize the benefit of this fire-protective technology for people living in manufactured homes. Cutler-Hammer supports the use of AFCIs on all circuits for the full benefit of greater protection in a swelling but the current code calls for bedrooms only as the first step in increased safety.

Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Reject
Committee Statement: The proposed language goes beyond the requirements of the 2005 and 2008 edition of the NEC. These editions of the NEC only require AFCI devices on branch circuits in sleeping rooms. The proposal as written would extend that requirement to other type of branch circuits.

3280HUD- Log #19 Final Action: Accept in Principle
(3280.804(m) (New))

Submitter: Kirk Schirra, Eaton Cutler-Hammer
Recommendation: Add a new paragraph (M) to read as follows:
(M) Bedrooms of manufactured homes. All branch circuits that supply 125-volt, single-phase, 15- and 20-ampere outlets installed in bedrooms of manufactured homes shall be protected by arc-fault circuit interrupter(s).
Substantiation: 210.12 of the National Electrical Code, NFPA 70-2002requires arc-fault circuit interrupter protection for the bedrooms of dwelling untits. Further, 550.25 of NFPA 70-2002 requires arc-fault interrupter protection for the bedrooms of mobile homes and manufactured homes. The present proposal expands the use of AFCIs to protection of all 15- and 20-ampere circuits in manufactured homes. In a companion proposal, cutler-Hammer has provided the AFCI definition form the NEC. AFCIs are readily available from circuit breaker manufacturers, and during the past year, millions of AFCIs have been installed in dwelling unit load-centers. These devices combine the wire-protection features of conventional circuit breakers with specific protection against arcing faults. Thus arcing events, with their associated fire initiation risk, are detected and interrupted under circumstances that would not trip a conventional circuit breaker, 550.25 was added to the National Electrical Code because it was recognized that the electrical distribution system of manufactured homes, like dwelling units, was a primary source of fires. Most recently, this has been confirmed int he NFPA Report “Overview of Fires in Manufactured Housing” by John Hall, April 2001. That report lists the Fires by Cause” for an annual average during the period 1989-1998. Electrical distribution fires were the leading cause (17%) of fires in manufactured homes, dCutler-Hammer urgest he MHCC to include the wording from NEC, NFPA 70-2002 in 3280.804. For manufactured homes, as with dwelling units, there is areal need for fire protection. The arc-fault circuit interrupter is available and is effective as evident from the support of organiazations such as the Consumer Product Safety Commission, the National Association of Fire Marshals, and Underwriters Laboratories. Adding this requirement of 24 CFR part 3280 would ensure that people living in manufactured omes benefit from this enhanced fire-prrotection.
A cost-Benefit Analysis has been completed by the Consumer Product Safety Commission in a report titled “Economic Considerations - AFCI Replacements” which has been provided with this proposal. The report looks at protection of the whole dwelling while current National Electric Code only requires bedroom circuits. The resulting additional cost of each dwelling unit would be $15-20 more per circuit for two circuits resulting in total cost increases of #30-40 per unit.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Accept in Principle
No further action as this item already recommended and accepted by MHCC and HUD in 2007.
Committee Statement: See previous MHCC Action on 3280 Log #4.

3280HUD- Log #21 Final Action: Reject
(3280.707)

Submitter: Mary Smith Carson, Vent-Free Gas Products Alliance a coalition of Members of GAMA,
Recommendation: Add text to read as follows:

Vent-free supplemental gas heating appliances are tested and certified to the American National Standard for Safety for Gas-Fired Room Heaters, Volume II, Unvented Room Heaters, ANSI Z21.11.2 safety standard. This standard is continually upgraded with no permitted application ever removed and several new applications approved based on total industry compliance and positive safety record, since 1980, approximately 17 million units installed in residential structures. These applications are now accepted in 49 states with the exception of California (1998 California state law revised to permit, but state agencies did not develop regulations to permit.) Not all jurisdictions in all other 49 states permit these installations, but particularly in states east of the Mississippi, there are practically no regulatory barriers. The last two states to permit unvented appliances are New York in 1998 and Massachusetts in 2004 after very intense product performance/safety review by state health and fire agencies.

All major model codes governing gas appliances permit vent-free gas products including: National Fuel Gas Code (NFPA 54/ANSI Z223.1), International Mechanical Code ((IMC), International Fuel Gas Code (IFGC), International Residential Code (IRC), Southern Building Code Congress International (SBCCI), Building Officials and Code Administrators (BOCA), Council of American Building Officials (CABO) and International Association of Plumbing and Mechanical Officials (IAPMO) Uniform Mechanical Code (UMC). The IAPMO code is the final code to approve in 2005 with primary influence in western states.

Independent third-party Indoor Air Quality (IAQ) Research has confirmed that vent-free gas products meet or exceed the most recognized IAQ guidelines for the five key by-products of combustion. These two research projects conducted in 1995 and 2004 provide the primary basis for response to agencies such as HUD regarding any IAQ concerns. Vent-free supplemental gas heating appliances are allowed and used in after-market manufactured homes since 1998.

The Consumer Product Safety Commission (CPSC) which is responsible for tracking and reporting the safety record of home appliances has confirmed in writing (2005 letter available on web site, www.ventfree.org that since 1980 there has never been a documented incident of poisoning or death associated with emissions from a vent-free gas product.

Definitions: Appliance, unvented. An appliance designed or installed in such a manner that the products of combustion are not conveyed by a vent or chimney directly to the outside atmosphere.

Substantiation: According to a recent study conducted by the Propane Education Research Council, manufacturers express a desire to have propane or gas space and water heaters with smaller footprints to give more flexibility in floor designs. By using an unvented space heater or fireplace, the manufacturer would benefit by labor and material cost savings of eliminating a vent pipe through the roof.

Also cited in the report was that when manufacturers used vented appliances there is an additional $100 - $300 costs because of the hinged roofs. When a hinged roof has a vent pipe, an alternative construction inspection must take place at the site. The cost of the inspection generally is in the $100 - $500 range. Total additional costs of a vented appliance in a hinged roof home can range from $400 - $750 for HUD-code homes and $100 - $300 for modular home and non-hinged HUD-code homes. The consumer also benefits because of a more affordable cost not being passed on them.

Committee Meeting Action: Reject
Committee Statement: The MHCC did not feel that enough information on the performance of vent-free supplemental heaters in manufactured homes is known to accept this change. One suggestion is for HUD to continue the work on indoor combustion and relative humidity being done by the University of Illinois Building Research Center and then present the findings to the Standards Subcommittee.

Some of the vent free appliances require a window to be open while in operation/use. Opening a window during use, as a recommendation for these appliances, would tend to increases energy costs

Finally, combustion appliances of this type release moisture into the indoor environment. This is especially a concern in areas with humid winter conditions – such as the Northwest US. If this concern could be addressed by way of the research project mentioned above, it would be one less concern that needs to be considered.

Number Eligible to Vote: 19
Ballot Results: Affirmative: 19
Comment on Affirmative:

WEINERT: 1. I agree with committee actions, and believe that an additional reason for rejecting vent-free gas appliance products is that public safety in this regard is paramount. Allowing some vent-free heating appliances into a

unit may confuse the public as to the critical need for appliance venting; may lead to encouraging after-market or owner-builder installation of vented appliances without the vents, causing serious health and safety issues.

3280HUD- Log #22 Final Action: Reject
(3280.504(a))

Submitter: John Weldy, CMH Manufacturing Inc.
Recommendation: Add text to read as follows:
Exceptions: 1. Where the framed roof cavity or attic space is ventilated to allow moisture to escape.
Substantiation: Proposed exception has been adopted by the International Code Council in section R318.1 exception 2 in the IRC. Proposed exception would be more consistent with other nationally accepted standards. This is the counterpart to the current exception for wall cavities under 3280.504(3). The problem: Spray on vapor barriers which are commonly used in industry are difficult to apply and inspect when applied to textured ceilings.
Cost benefit: There would be a considerable cost savings as a result primarily of production time savings. Currently, wet vapor barriers need to be applied separately from ceiling texture and allowed to dry prior to finishing ceiling. Production delays and bottlenecks may result from extra step.
Committee Meeting Action: Reject
Committee Statement: Moisture control and containment is an important consideration in manufactured home design. If a vent is present to allow moisture to escape, that same vent will allow moisture to enter the home as well.
The MHCC was also unclear on the placement of the exception if it was to apply only to 3280.504(a) or to 3280.504(a) and 3280.504(3).
Number Eligible to Vote: 19
Ballot Results: Affirmative: 17 Negative: 1 Abstain: 1
Explanation of Negative:
STAMER: I agree in principle (APR) to this proposal. I do not reject (R) as the committee has done.
Explanation of Abstention:
LUBLINER: More HUD research in collaboration with USEPA and USDOE is needed to better inform the MHCC and HUD staff on basic building science issues related to this proposal. The current HUD requirements focus on perms yet research has shown that much of the moisture in attics (and walls) is primarily related to mass transport via air leakage and roof venting and not vapor barrier diffusion.

3280HUD- Log #23 Final Action: Accept in Principle
(3280.607(B)3i)

Submitter: Ross Kinzler, Wisconsin Housing Alliance & Tomorrow's Home Foundation, and Amy Bliss
Recommendation: Revise text to read as follows:
Each compartment stall shall be provided with an approved watertight receptor with sides and back extending at least 1 inch above the finished dam or threshold unless a roll-in or barrier free shower unit is installed.
Substantiation: In order to accommodate the needs of persons with disabilities a roll in shower is needed. The current code language requiring a 1 in. minimum dam height precludes the use of these units without an alternative construction letter. The results is the homeowner removing the factory installed unit and retrofitting a shower that fits their needs at great expense.
This proposal will save consumers who require a roll-in shower compartment a considerable amount of both money and trouble. Currently, a consumer needing a roll-in style unit must have conventional unit installed by the factory and then once the home is delivered, have that unit removed and the desired roll-in unit installed. As a result, a perfectly good standard shower unit is destroyed in order to reach the desired result for the customer.
Wheelchair users have some difficulty maneuvering over the threshold of a standard shower unit. The code requires a minimum 1 in. threshold dam. A market-based solution is to provide the wheelchair user with a roll-in unit which may have a lower threshold or a collapsible threshold. Allowing for an alliterative to the 1 in. dam makes the use of these roll-in units possible as original factory installed equipment.
Committee Meeting Action: Accept in Principle
Committee Statement: The MHCC, although not taking a specific action on the topic at this time involving any changes to the standards, does want to let the public at large know that this topic is important. The MHCC wants to look at the subjects of accessible and universal design as a holistic and complete package rather than taking a piecemeal approach.
Number Eligible to Vote: 19
Ballot Results: Affirmative: 17 Negative: 2
Explanation of Negative:
GORMAN: See the Explanation of Negative for JEWELL-CP2.
JEWELL: I vote to reject the committee's proposal to "accept in principle" this proposal as its final action. I disagree with the committee's decision to put off action on this important proposal. While I agree the subject of universal design should be addressed holistically, I don't believe that precludes immediate action on this item. Any MHCC recommendation on "holistic universal design" is realistically months, if not years, off. We should accept this log proposal immediately.
Comment on Affirmative:
STAMER: I agree totally to this proposal, not just agree in principle as the committee has done.

3280HUD- Log #24 Final Action: Reject
(3280.504(b)(1))

Submitter: Robert Parks, Healthy Homes of Louisiana, lic
Recommendation: Add text to read as follows:
3280.504(b) Exterior walls.
(1) Exterior walls shall have a vapor barrier not greater than 1 perm (dry cup method) installed on the living space side of the wall.
"Exception - Shall not be utilized in homes to be placed within areas identified in 3280.504(b)(4), or..."
Substantiation: The purpose of the information gathered and presented in this report is meant to demonstrate why the use of a vapor barrier/retarder utilized on the cooled side (a.k.a living side) in the hot, humid climate is not an appropriate building practice. It has been reiterated by many building experts, as well as the manufactured housing industry themselves, that the placement of a vapor barrier on the "living side" in the hot, humid climate is detrimental to the wall structure. The effects of such a practice have been moisture accumulation within wall cavities, wallboard deterioration and mold concerns. These issues then lead to extensive repair cost and often litigation. For these reasons and because 3280.540(b)(4) was designated as an "alternative" to 3280.504(b)(1), the above recommendations are presented for your consideration.
Note: Supporting material is available for review at NFPA Headquarters.
This is not original material; its reference/source is as follows:
Many publication from within HUD, the manufactured housing industry and the Building Science community.
Committee Meeting Action: Reject
Committee Statement: The MHCC is not convinced of the validity and conclusions in the report that accompanied this proposed change. The vinyl sheet rock and vinyl wall paper coupled with low air conditioning temperatures (65° F) in hot, humid climates causes this phenomenon to occur. Current home designs have addressed this issue by making the home's exterior envelope tighter and by limiting and minimizing the movement of air. The standard allows the designer to address the issue either by restricting the use of certain materials or by carefully controlling the movement of air or some combination of the two. This proposal would eliminate the currently accepted practice of controlling the air movement.
Number Eligible to Vote: 19
Ballot Results: Affirmative: 18 Abstain: 1
Explanation of Abstention:
LUBLINER: The proposal requires exterior walls to have a vapor barrier not greater than 1 perm (dry cup method) installed on the living space side of the wall. This may eliminate the use of many existing vinyl covered drywall products commonly used as wall finish systems. The MHCC may not be convinced of the validity and conclusions in the report however they are unaware, or would like to ignore the fact that there is considerable published research on HUD-code homes moisture problems in hot humid climates can result in part by the presence of the vinyl drywall system. There are a variety of other reasons that also contribute to moisture problems including;
1) Supply ductwork leakage causes home to be at negative pressure when the HVAC is operating.
2) Significant air leakage paths exist that allow hot humid air to be drawn into the wall and condense at the outside drywall surface especially when the home indoor air temperatures are reduced below 78F.
3) High mass siding products which can store moisture and then release them into the wall where they can condense behind vinyl covered drywall
MHCC provided no evidence to support the reasons for their following rejection comments:
A) "current home designs have addressed this issue by making the home's exterior envelop tighter and by limiting and minimizing the movement of air."
B) "would eliminate the currently accepted practice of controlling the air movement." MHCC and HUD staff must address the building science issues related to this proposal. The current HUD requires focus on perms yet research has shown that much of the moisture in attics (and walls) is primarily related to mass transport via air leakage and roof venting and not vapor barrier diffusion.
Comment on Affirmative:
BERGER: Neither the proposal nor the rejection thereof truly address the root of the problem. While it is true that in hot/humid environments moist air can condense within the wall cavity and promote mold growth and deterioration of wood substrates and destroy the effectiveness of fiberglass insulation, this situation will occur with or without a vapor barrier on the living side of the exterior wall. What is absolutely necessary is combine this interior vapor barrier with a sufficient amount of insulation in the cavity wall so as to move the condensation point (the temperature at which

moisture in the air will condense into liquid water) from within the wall cavity to outside the structure. If the cold air is contained within the structure more effectively, than condensation will not occur in the wall cavity.

3280HUD- Log #26 Final Action: Accept in Principle
(3280.210)

Submitter: Tom Neltner, National Center for Healthy Housing
Recommendation: Add new section 24 CFR 3280. 210 stating:
If manufactured housing is equipped with a furnace or appliances combusting device, at least one carbon monoxide alarm must be installed outside of bedroom. The carbon monoxide alarm must be listed by the Underwriters Laboratories and have a peak level recorder. Home manufacturers must comply with the connection to a power source, ~~notification, testing, and maintenance requirement of Section 3280.208(d), (e) and (f) as if the carbon monoxide alarm were a smoke alarm.~~
Substantiation: Hundred of people die and thousands are injured due to carbon monoxide (CO) poisoning. Properly installed, UL-listed, CO alarms can reduce that number dramatically. The federal government including CPSC, CDC, U.S. Fire Service, and HUD recommend installing a UL Listed carbon monoxide alarm. See www.hud.gov/offices/lead/healthyhomes/carbonmonoxide.cfm. An alarm costs around $25 and when coordinated with a smoke alarm has nominal installation costs.
Committee Meeting Action: Accept in Principle
Committee Statement: The MHCC has proposed a new section (3280.210) via MHCC Proposal 3280- LOG #CP2. The proposal from the MHCC mandates use of CO detection devices in all homes and not just those that utilize a fossil fuel heating source.
Number Eligible to Vote: 19
Ballot Results: Affirmative: 15 Negative: 5
Explanation of Negative:
BRENTON: Log numbers 26 and 32 are taken care of in CP2.
DESFOSSES: Log items 26 & 32 are also acted upon by the Committee's action & recommendation to the Secretary in log CP2 which is more specific. Log items 26 & 32 should be deleted without action (rejected) in order to make it clear to the Secretary that the criteria by the MHCC is based on its report on CP-2 & no other action is needed on the other log items. (i.e. 26 and 32)
GHORBANI: Log items 26 and 32 are subsumed by the Committee's action and recommendation to the Secretary in log item CP2, which is more specific. Accordingly, log items 26 and 32 should be deleted from the proposal log without action (*i.e.*, rejected), in order to make it clear that the action recommended to the Secretary by the MHCC is based on -- and set forth in -- its report on CP2, and that no other action is needed on these other log items (i.e., 26 and 32). This will also clear the log of proposals that have, in fact, been addressed by the MHCC and require no further action.
GORMAN: Log numbers 26 and 32 are not necessary if CP2 is affirmed.
ZIEMAN: See my Explanation of Negative for CP2.

3280HUD- Log #27 Final Action: Reject
(3280.308)

Submitter: Tom Neltner, National Center for Healthy Housing
Recommendation: Add new paragraph (e) as follows:
(e) Manufactured housing constructed after January 1, 2012 shall use plywood and particleboard that complies with Title 17 Section 93120 to 93120. 12 of the California Code of Regulations for airborne toxic control measure to reduce formaldehyde emissions from composite wood products.
Substantiation: Formaldehyde is a significant respiratory irritant and potential health threat to residents, especially residents with asthma. The HUD standards do not adequately protect residents. In April 2007, the California Air Resources Board adopted standards that set the most stringent standards for composite wood products. CARB expects to finalize those standards in December 2007 with a four-year, phase-in period. The California standards for these products will become the national norm. While it will cost more, all residents deserve additional protection from formaldehyde.
Committee Meeting Action: Reject
Committee Statement: The MHCC action is based on two factors. The first is that the second group of changes to the standards that have been processed by HUD include revisions that will impact formaldehyde emissions form certain building products.

The second reason is that the US EPA has issued a proposed rule that will result in new regulations. The *Formaldehyde Standards for Composite Wood Products Act* (PL 111-199) is expected to layer in added provisions that will impact formaldehyde emissions as well. The MHCC will revisit the issue (if necessary) in the future once the EPA rules are final.

3280HUD- Log #28 Final Action: Reject
(3280.103(C)(3))

Submitter: Mike Moore, Newport Ventures
Recommendation: Revise text to read as follows:
3280.103(C)(3): Each bathroom and separate toilet compartment shall be provided with an Energy Star labeled mechanical ventilation system capable of exhausting 50 cfm to the outside of the home. A separate toilet compartment may be provided with 1.5 square feet of openable glazed area in place of mechanical ventilation, except in Uo value Zone 3.
Substantiation: Traditionally, manufactured homes have been troubled by poor indoor air quality and moisture problems. The current code requires mechanical ventilation systems in bathrooms and toilet compartments, but does not regulate the efficacy of the system or the operational sound level of the system. By requiring Energy Star labeled fans to be used in these areas, the efficacy and sound level of these systems are addressed. Sound levels have been linked to user's willingness to operate fans, with noisier fans resulting in shorter run times. Typical Energy Star bathroom and utility room fans operate at 2 sones or less, increasing the change that run times are sufficient to reduce humidity to appropriate levels. This is accomplished at an efficacy of at least 1.4 cfm/Watt, resulting in energy savings of up to 65% off of standard models, according to EPA. A cost benefit analysis predicts a simple payback of 1.25 years for Energy Star fans when used within a whole house ventilation system, which is required by the MHSCC.
Cost Benefits: Based on first and operational cost comparisons between two market available fans (one baseline and one Energy Star), the estimated payback of an Energy Star fan is 1.25 years. Furthermore, the baseline fan is not rated for continuous operation, and so it will likely need to be replaced more often than the Energy Star fan, making the Energy Star fan that much more affordable. Key assumptions include: U.S. average electricity rate of $0.104/kWh (source: 2006 U.S. DOE EIA), retail costs of bath fans (source: www.wamhomecenter.com), continuous operation (a likely condition if the fan is used for whole house ventilation), 1.336 lbs CO_2/kWh (source: U.S. DOE EIA). See table below for details.

Insert Table here

Committee Meeting Action: Reject
Committee Statement: The MHCC views the Energy Star provisions as somewhat of a moving target. Values and metrics to determine Energy Star values are subject to change. In addition, the MHCC previously rejected other proposals to 3280 that would have required Energy Star rated components (See 3280 Log #60 and 3280 Log #62). Finally, the ROI for Energy Star is based on whole house ventilation rather than spot ventilation improvements (e.g., bathroom fan) and the analysis for the information is based on whole house ventilation systems.

	Example Product	Exhaust Rate (CFM)	Noise Level (sones)	Initial Cost	Power Draw (Watts)	Anuual Energy Consumed (kWh)	Annual Operational Cost ($)	Simple Payback (years)	Estimated Annual CO_2 Savings (pounds)
Energy Star Fan	Broan QTXE050	50	0.3	$95.90	36	315	$32.80	1.25	842.6
Baseline Fan	Broan 688	50	4	$13.99	108	946	$98.39	N/A	N/A

3280HUD- Log #29 Final Action: Reject
(3280.111)

Submitter: Tom Neltner, National Center for Healthy Housing
Recommendation: Revise 3280.111 as follows:
Each toilet compartment shall be a minimum of 30 inches in width, except, when the toilet is located adjacent to the short dimension of the tub, the distance from the tub to the center line of the toilet shall not be less than 12 inches. At least 21 inches of clear space shall be provided in front of each toilet. The floor, shower, and tub areas must be constructed of non-absorbent surfaces that will not trap water and support mold growth. Vinyl wallpaper and paper-faced gypsum board and unsealed grout traps water and is not to be used in toilet rooms and bathrooms and laundry rooms. Wall-to-wall carpets or carpet pads shall not be installed in toilet rooms, bathrooms, or under concealed spaces subject to excessive moisture, such as plumbing fixture spaces, floor areas under installed laundry equipment.
Substantiation: Non-absorbent materials in the wet surfaces of a bathroom, laundry room and other wet rooms are essential for basic sanitation and hygiene. This requirement is common in housing codes across the United States. Materials used in wet rooms such as a toilet room must not support mold growth. In 2004, the Institute of Medicine concluded that mold in damp environments is associated with asthma, hypersensitivity pneumonitis, upper respiratory tract symptoms, coughing and wheezing. There is no additional cost for this proposed change, because alternative materials are readily available at the same or lower cost.
Committee Meeting Action: Reject
Committee Statement: The MHCC does not want to limit the choices for the types materials used in the bathroom. This proposal does that by restricting the use of certain wallpaper materials, gypsum board and carpeting in the bathroom areas. Information conveyed by several MHCC members indicates that seniors in particular prefer a carpeted floor surface in their bathroom areas to minimize the chance of slipping on a wet floor. Tile and linoleum floors were noted as being more problematic for seniors.
The MHCC also looked at comparable rules in the International Residential Code-IRC. The IRC makes no similar restriction on materials in bathrooms. The International Building Code-IBC does prohibit carpeted floors in commercial rest rooms.
Number Eligible to Vote: 19
Ballot Results: Affirmative: 1 Negative: 1 Abstain: 1
Explanation of Negative:
BERGER: The decision not to limit absorbent materials in bathrooms is inherently wrong from an overall health and safety standpoint as well as a good construction practices standpoint. Absorbent materials that trap water promote both mold and bacterial growth. If there is insufficient ventilation and the water is unable to dry, then it will promote decay and deterioration of the subfloor resulting in preventable and costly repairs. Those individuals who desire carpet, for whatever reasons including as a measure against tripping can easily employ throw rugs installed with double-stick carpet tape or even adhesive-backed carpet squares on top of sheet vinyl flooring. Although the statement that the IRC does not restrict absorbent materials from being installed in bathrooms may be technically true, the fact remains that many local authorities having jurisdiction have enacted more stringent codes that do, indeed, prohibit the use of absorbent materials in bathrooms (not to mention kitchens).
Explanation of Abstention:
LUBLINER: More research is needed to address this issue. The proposer has raised considerable potential health and safety issues in bathroom areas. I disagree with MHCC statement that made by several MHCC members indicates that "seniors in particular prefer a carpeted floor surface in their bathroom areas to minimize the chance of slipping". Tile and linoleum floors are more common in senior housing than is carpet in bathrooms because they are safer and less mold resistant.
Comment on Affirmative:
SHEAHAN: Consumers desiring reasonable alternative materials should be able to opt for such, so long as they are properly informed of the risks involved.

3280HUD- Log #31 Final Action: Reject
(3280.308)

Submitter: Tom Neltner, National Center for Healthy Housing
Recommendation: Add new paragraph (e) as follows:
(e) Manufactured housing constructed after January 1, 2012 that contains plywood and/or particleboard must use only plywood and/or particleboard that complies with Title 17 Section 93120 to 93120.12 of the California Code of Regulations for airborne toxic control measure to reduce formaldehyde emissions from composite wood products.
Substantiation: Formaldehyde is a significant respiratory irritant and health threat to residents, especially residents with asthma or those who have been sensitized. In April 2007, the California Air Resources Board (CARB) adopted standards that achieve the lowest exposures from composite wood products. The CARB Standards have a four-year, phase-in period. The cost will be approximately 10% higher, and will be offset by fewer health related costs associated with exposure to formaldehyde.
Committee Meeting Action: Reject
Committee Statement: The MHCC action is based on two factors. The first is that the second group of changes to the standards that have been processed by HUD include revisions that will impact formaldehyde emissions form certain building products.

The second reason is that the US EPA has issued a proposed rule that will result in new regulations. The *Formaldehyde Standards for Composite Wood Products Act* (PL 111-199) is expected to layer in added provisions that will impact formaldehyde emissions as well. The MHCC will revisit the issue (if necessary) in the future once the EPA rules are final.

3280HUD- Log #32 Final Action: Accept in Principle
(3280.210)

Submitter: Tom Neltner, National Center for Healthy Housing
Recommendation: Add new section 24 CFR 3280.210 stating:
If manufactured housing is equipped with a fossil fuel-fired furnace, fossil-fuel powered hot water heater, fossil-fuel powered space heater, fossil-fuel powered stove or oven or other appliance combusting device in which carbon monoxide is produced, one carbon monoxide alarm must be installed next to each smoke alarm. The carbon monoxide alarm must be listed by the Underwriters Laboratories and have a peak level recorder. Home manufacturers must comply with the connection to a power source, notification, testing, and maintenance and installation requirements of Section 3280.208(d), (e) and (f) as if the carbon monoxide alarm were a smoke alarm.
Substantiation: Annually, hundreds of people die and thousands are injured due to carbon monoxide (CO) poisoning. Properly installed, UL-listed, CO alarms can reduce that number dramatically. The federal government including CPSC, CDC, U.S. Fire Service, and HUD recommend installing a UL Listed carbon monoxide alarm. For the HUD recommendation, see www.hud.gov/offices/lead/healthyhomes/carbonmonoxide.cfm. A CO alarm costs around $25 and when coordinated with a smoke alarm has nominal installation costs.
Committee Meeting Action: Accept in Principle
Committee Statement: The MHCC has proposed a new section (3280.210) via MHCC Proposal 3280- LOG# CP2. The proposal from the MHCC mandates use of CO detection devices in all homes and not just those that utilize a fossil fuel heating source.
Number Eligible to Vote: 19
Ballot Results: Affirmative: 15 Negative: 5
Explanation of Negative:
BRENTON: Log numbers 26 and 32 are taken care of in CP2.
DESFOSSES: Log items 26 & 32 are also acted upon by the Committee's action & recommendation to the Secretary in log CP2 which is more specific. Log items 26 & 32 should be deleted without action (rejected) in order to make it clear to the Secretary that the action by the MHCC is based on its report on CP-2 & no other action is needed on the other log items. (i.e., 26 and 32)
GHORBANI: Log items 26 and 32 are subsumed by the Committee's action and recommendation to the Secretary in log item CP2, which is more specific. Accordingly, log items 26 and 32 should be deleted from the proposal log without action (i.e., rejected), in order to make it clear that the action recommended to the Secretary by the MHCC is based on -- and set forth in -- its report on CP2, and that no other action is needed on these other log items (i.e., 26 and 32). This will also clear the log of proposals that have, in fact, been addressed by the MHCC and require no further action.
GORMAN: Log numbers 26 and 32 are not necessary if CP2 is affirmed.
ZIEMAN: See my Explanation of Negative for CP2.

3280HUD- Log #34 Final Action: Accept
(3280.304)

Submitter: Gary D. Gramp, Hardwood Plywood & Veneer Assn.
Recommendation: Revise text to read as follows:
Under wood and wood products:
American National Standard for Hardwood and Decorative Plywood-ANSI/HPVA HP-1-~~1994 (Approved 1995)~~ 2004 (Approved May 6-2004)
Substantiation: The HP-1 ANSI standard should be updated to the 2004 version. The 1994 version is no longer in effect. There is no cost involved in updating the hardwood plywood standard reference.
Committee Meeting Action: Accept

3280HUD- Log #35 Final Action: Reject
(3280.602 and 611 d))

Submitter: Sidney G. Becnel, Louisiana Dept. of Health and Hospitals
Recommendation: Title 24-- Housing and Urban Development.

CHAPTER XX--OFFICE OF ASSISTANT SECRETARY FOR HOUSING--FEDERAL HOUSING COMMISSIONER, DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (4/1/06 Edition)

PART 3280--MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS

SUBPART G - PLUMBING SYSTEMS

~~*Anti siphon trap vent device* means a device which 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.~~

§ 3280.601 Scope. ●●●

§ 3280.602 Definitions.

The following definitions are applicable to subpart G only:

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~~*Anti-siphon trap vent device* means a device which 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.~~

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[40 FR 58752, Dec.18, 1975. Redesignated at 44_FR 20679, Apr, 6, 1979, as amended at 52 FR 4584, Feb. 12, 1987; 52 FR 47553, Dec.15, 1987; 58 FR 55012, Oct. 25, 1993; 73 FR ?????,??/??/2008.]

§3280.603 - §3280.610 ●●●

§3280.611 Vents and venting.

(a) – (c)(5) ●●●

~~(d) *Anti-siphon trap vent.* An anti-siphon trap vent may be used as a secondary vent system for plumbing fixtures protected by traps not larger than 1 1/2 inches, when installed in accordance with the manufacturers' recommendations and the following conditions.~~

~~(1) Not more than two fixtures individually protected by the device shall be drained by a common 1 1/2 inch drain.~~

~~(2) Minimum drain size for three or more fixtures individually protected by the device shall be 2 inches.~~

~~(3) A primary vent stack must be installed to vent the toilet drain at the point of heaviest drainage fixture unit loading.~~

~~(4) The device shall be installed in a location that permits a free flow of air and shall be accessible for inspection, maintenance, and replacement and the sealing function shall be at least 6 inches above the top of the trap arm.~~

~~(5) Materials for the anti-siphon trap vent shall be as follows.~~

~~(i) Cap and housing shall be listed acrylonitrile butadiene styrene, DWV grade;~~

~~(ii) Stem shall be DWV grade nylon or acetal;~~

~~(iii) Spring shall be stainless steel wire, type 302;~~

~~(iv) Sealing disc shall be neoprene, conforming to CISPI HSN 85, the Specification for Neoprene Rubber Gaskets for HUB and Spigot Cast Iron Soil Pipe and Fittings, and ASTM C 564 88, Standard Specification for Rubber Gaskets for Case Iron Soil Pipe and Fittings, or, Silicone Rubber, Low and high Temperature and Tear Resistant, Conforming to Rubber, Silicone, FS ZZ R 765B 1970, With 1971 Amendment 1, and Liners, Case, and Sheet, Overwrap, Water Vapor Proof or Waterproof, Flexible, MIL L 10547E 1975.~~

(~~c~~d) *Grade and Connections*—(1) *Horizontal vents*. Each vent shall extend vertically from its fixture "T" or point of

connection with the waste piping to a point not less than 6 inches above the extreme flood level of the fixture it is venting before offsetting horizontally or being connected with any other vent pipe. Vents for horizontal drains shall connect above the centerline of the drain piping ahead (downstream) of the trap. Where required by structural conditions, vent piping may offset below the rim of the fixture at the maximum angle or height possible.

(~~f~~e) *Vent terminal*—(1) *Roof extension*. Each vent pipe shall extend through its flashing and terminate vertically, undiminished in size, not less than 2 inches above the roof. Vent openings shall not be less than 3 feet away from any motor-driven air intake that opens into habitable areas.

(2) *Flashing.* The opening around each vent pipe shall be made watertight by an adequate flashing or flashing material.

(~~g~~f) *Vent caps*. Vent caps, if provided, shall be of the removable type (without removing the flashing from the roof). When vent caps are used for roof space ventilation and the caps are identical to vent caps used for the plumbing system, plumbing system caps shall be identified with permanent markings.

[40 FR 58752, Dec. 18, 1975, as amended at 42 FR 961, Jan. 4, 1977. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 58 FR 55015, Oct. 25, 1993; 73 FR ?????, ??/??/2008.]

§3280.612 ●●●

Substantiation: Problem:

Public health sanitarians employed by the Louisiana Department of Health and Hospitals, Office of Public Health, Center for Environmental Health Services (LDHH-OPH-CEHS) (as well as members and staff of the State Plumbing Board of Louisiana) are aware of complaints from time to time of sewer gas odors in the occupied quarters of manufactured housing, including mobile homes and travel trailers. Besides being annoying and unpleasant, breathing sewer gas is not healthy for anyone as it likely contains potentially explosive and/or toxic chemicals as well as harmful viruses. Most of the time, the problem seems to involve a failed “anti-siphon trap vent device” (as defined by HUD under 24 CFR 3280.602). These and other similar devices are now generally referred to as “air admittance valves” in the plumbing industry. They are designed to remain closed except when water is drained from the kitchen sink, bathroom lavatory, or other plumbing fixtures. The device opens when water is drained. The opening of the device is intended to allow air from the occupied space to enter into the drain line downstream of the fixture “P” trap so that the water contained in the fixture “P” trap is not siphoned. The purpose of the trap is to hold water so as to provide a “water seal”. The “water seal” prevents sewer gas (located on the downstream side of the “P” trap) from entering the occupied space. The main goal of venting a drain line is to prevent the water in the “P” trap from being siphoned.

An “anti-siphon trap vent device” contains a spring in the device whereas an “air admittance valve” does not. Both are mechanical devices. There is one or more moveable parts in such devices. These mechanical devices are designed to prevent sewer gas entry into the occupied portion of the manufactured home. Unfortunately, when the moveable part(s) fail in the open position, sewer gas is allowed to pass through the openings of the device itself and into the occupied space. When the moveable part(s) fail in the closed position, it is likely that the water within the “P” trap will be siphoned or partially siphoned. The result is the same, sewer gas is allowed to enter the occupied space and residents then become exposed to such gas.

Conventional venting of a plumbing system is done by the use of vent pipes. Vent pipes are non-mechanical in the sense that there is no moveable part within the vent pipe which can fail. A vent pipe may extend and terminate independently above the roof line or it may connect to another nearby vent pipe in the wall or ceiling with only one pipe extending above the roof line. The vent pipe contains air obtained from the atmosphere from the open vent pipe terminal above the roof and, overtime, also sewer gas obtained from the drainage and sewerage system. Vent pipes connect immediately downstream of the “P” trap. The purpose of the vent pipe is to provide air inside of the drain pipe at or near atmospheric pressure to prevent the “P” trap from being siphoned. For the majority of homeowners, they have no knowledge of the details of plumbing. All they know is what their nose tells them. When they smell sewer gas, they know they have a problem. Although I do not have first hand knowledge of this, I am told that from time to time, a trap seal may be blown out by a strong gust of wind, for example, even in a conventionally vented system. In the case of conventional venting, all the homeowner has to do to correct the problem is to run water in the plumbing fixture. He can correct the problem without even knowing what the problem is or that he corrected it just by running water. On the other hand, when a mechanical “anti-siphon trap vent device” or “air admittance valve” fails, simply the running of water will not correct the problem. Normally, the homeowner has no idea of the problem and either will eventually call a plumber or the health department. The solution to fixing a faulty “anti-siphon trap vent device” or “air admittance valve” calls for either replacement of the faulty device or the installation of conventional venting. This can be expensive to the homeowner in more ways than one. As most owners of manufactured housing are in the lower income brackets, it is likely that they will put up with the odor for some time and try to figure out the problems themselves before seeking outside help. This lapse in speedily determining the problem and correcting it increases the time that occupants are being exposed to sewer gas.

In 2003, the world experienced the SARS epidemic. SARS stands for Severe Acute Respiratory Syndrome. It has

been determined that SARS is caused by a coronavirus. In 2003, the World Health Organization (WHO), through a team of Canadian environmental scientists, conducted a study of the transmission of SARS in the Amoy Gardens Apartment Complex located in Hong Kong, China. The Amoy Gardens contains a number of high rise residential towers (33 floors) which contain 8 small residential apartments per floor. In 2004, the International Association of Plumbing and Mechanical Officials (IAPMO) and the World Plumbing Council (WPC) held an international conference in Los Angeles, CA to discuss this subject. To make a long story short, the study team determined that the SARS coronavirus was being spread through the air due to a faulty "P" or "U" trap for a floor drain in one apartment's bathroom, along with the use of powerful vent fans installed in the toilet room window. The metal "P" or "U" trap leaked and lost its waterseal. The coronavirus was siphoned out of the sewer line, through the faulty, unsealed "P" or "U" trap and into the air of the bathroom. The contaminated air was then discharged outside. Since air conditioning was pretty much non-existent, the bathroom vent fan was being used as a house fan. In other words, the windows in other parts of the same apartment were cracked open to allow fresh air to be sucked in due to the powerful exhaust of the bathroom vent fan. The SARS coronavirus, now floating in the air outside, was sucked into nearby apartments which had similar venting arrangements. Occupants of other apartments became infected and at least 42 persons in the Amoy Gardens complex died.

LDHH-OPH-CEHS adopted its most current plumbing code in July 2000, with an October 2000 effective date. It is called the "Louisiana State Plumbing Code, 2000 Edition". It is based on the 1994 Standard Plumbing Code (SPC) published by the Southern Building Code Congress International (SBCCI) as amended by the 1999 Louisiana Amendments. Our previous state plumbing code (adopted in 1992) was based on the 1991 SPC with the 1992 Louisiana Amendments. Since 1992, the State of Louisiana has required that the drain line of a manufactured home/mobile home/travel trailer be connected to a house trap, otherwise known as a trailer trap. The trailer trap is not part of the manufactured home itself. It is part of the park's drainage system to which each manufactured home/mobile home/travel trailer connects. It is normally located in-the-ground adjacent to where the trailer sits. Since Louisiana (and all other states and localities) are preempted by HUD regulations from being able to regulate the construction of the manufactured home itself, this requirement is Louisiana's answer to these HUD regulations. Due to our concern with sewer gas entry (via the community sewerage system or, in some cases, via the individual, on-site sewerage system) into the home's occupied space due to faulty "anti-siphon trap vent devices", the outdoor trailer trap's purpose is to prevent sewer gas from neighbors and other downstream sources finding its way into the home. This requirement was standard practice and was contained within the SPC for many years. As you may know, SBCCI no longer exists and the SPC is no longer published. SBCCI joined up with two other model code organizations to form the International Code Council (ICC). In 1997, SBCCI published its last SPC. Unfortunately, the 1997 SPC essentially consisted of a copy of the 1995 International Plumbing Code (IPC) in a SBCCI three-ring binder and it was labeled as the 1997 SPC. The 1997 SPC is not equivalent to the 1994 SPC and it no longer contained the requirement for trailer traps. In fact, former Appendices B (Travel Trailers and Travel Trailer Parks) and C (Manufactured Homes and Manufactured Home Parks) of previous SPCs (which contained specific regulations relative to manufactured home parks and travel trailer parks) were totally eliminated upon publication of the 1997 "SPC" (*i.e.*, 1995 IPC in a 1997 SPC binder)!

In 2005, the Gulf Coast experienced both Hurricanes Katrina and Rita within about 3 weeks of one another. The Federal Emergency Management Agency's (FEMA) solution to the housing shortage problem was to bring in "FEMA trailers". Due to the higher than normal density of trailers being proposed in FEMA parks, LDHH-OPH-CEHS concerns with sewer gas and possible health problems were increased. LDHH-OPH-CEHS insisted that each of these trailers be connected to a trailer trap to ensure that occupants were not going to be exposed to the sewer gas of their neighbor should an "anti-siphon trap vent device" fail.

In the summer of 2007, FEMA was called before a Congressional hearing relative to persons who alleged to have become ill by residing in a FEMA trailer. The onus of such hearing was relative to the levels of formaldehyde that the occupants were being exposed to. If I am not mistaken, during the hearing, FEMA officials stated that most of the complaints received at the time were from Mississippi residents. If this is correct, this seems to be quite strange since there were many more trailers placed in Louisiana than Mississippi. Most Mississippi localities use the IPC. The IPC does not contain the trailer trap requirement; thus, trailer traps were likely not installed for individual FEMA trailers in Mississippi. My theory is that not all the illnesses being blamed on formaldehyde is from formaldehyde alone. I have a gut feeling that more persons that complained were from Mississippi than from Louisiana may be caused by Mississippi not requiring trailer traps; thus, residents likely were being exposed to more than formaldehyde if the "anti-siphon trap vent device" failed.

Even in Louisiana, staff from the State Plumbing Board of Louisiana said that they noticed that residents complained of water coming out of "anti-siphon trap vent devices". The residents, not knowing what the valve is for or what it does, only knew they had a leak. Their solution was to take gray duct tape and tape over the "anti-siphon trap vent device" in an attempt to prevent it from leaking. Of course, this also prevents it from protecting the trap seal since air cannot flow through duct tape and enter the drain line. Regardless, even if the resident covered the valve with duct tape, they were being protected from external sewer gas of their neighbors by use of the trailer trap which was required to be installed

outside of the trailer. This leads to a discussion of the first sentence of 24 CFR 3280.611(d) which states that "*An anti-siphon trap vent may be used as a secondary vent system for plumbing fixtures protected by traps not larger than 11/2 inches, when installed in accordance with the manufacturers' recommendations...*". If these devices were being installed in manufactured homes in accordance with the manufacturer's recommendations, they should never leak water because either the manufacturer's recommendations calls for (or, if not, should call for) the device to be located at least 4" above the flood level rim of the fixture. If the manufacturer's recommended installation location is adhered to, this would ensure that water would never get into the device. Apparently, this is not being adhered to as most devices I have seen are beneath the counter supporting the plumbing fixture, thus they are located below the flood level rim of the fixture. This location exposes the moving part(s) of the device to water, rice, grease, soaps, detergents, and other items found in wastewater. This is not good for the expected continuation of the device to work properly and as designed. Keeping the device at a location where it cannot flood is only logical!

My proposal is to do away with the use of any mechanical device in the plumbing venting system and to rely on the proven conventional venting system where each trap is connected to a properly installed vent pipe which itself terminates in the outside atmosphere above the roof. However, if the rule should remain in place as currently written, HUD should amend it to specifically require that installed devices be located at least 4 inches above the flood level rim of the fixture. Also, HUD should be aware that the IPC allows the use of air admittance valves in traditional, stick-built homes; however, any such device must meet Standard 1051 of the American Society of Sanitary Engineers (ANSI/ASSE Std. 1051 – *Performance Requirements for Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems – Fixture and Branch Devices*). Again, if the rule should remain in place as currently written, HUD should amend their rule to specifically require that "anti-siphon trap vent devices" meet a national standard developed through a consensus standards development process approved by the American National Standards Institute (ANSI).

As far as LDHH-OPH-CEHS is concerned, we plan to continue to require trailer traps for manufactured housing unless it can be shown that the manufactured/mobile home/recreational vehicle is conventionally vented (and does not contain any "anti-siphon trap vent device" or "air admittance valve"). We believe this to be most protective of public health and safety. As a further point of information, due to the above enunciated concerns, the Louisiana State Plumbing Code, 2000 Edition, does not allow the use of air admittance valves in plumbing systems which fall under the jurisdiction of such regulations.

Costs:

It is estimated that the cost of a trailer trap is $100. On the internet, I have noticed that "anti-siphon trap vent devices" cost as low as $3.99. In contrast, I believe that an ANSI/ASSE 1051 "air admittance valve" costs about $25.00.

By eliminating allowing the use of "anti-siphon trap vent devices" or "air admittance valves" in the plumbing vent system, manufacturers would then have to redesign the plumbing vent system so as to be able to extend and connect vent pipes in a conventional venting system manner (see attached pictorial showing difference in construction between an "anti-siphon trap vent device or air admittance valve" system and a conventionally vented system). The additional cost would include a few feet of small diameter PVC or ABS piping, some fittings, and the labor to install same.

It is believed that the long-term public health benefits would outweigh any economic concerns related to the initial costs. The cost of treating occupants who become ill due to faulty "anti-siphon trap vent devices or air admittance valves" far outweighs any concerns with a possible increase in initial installation costs. In some cases, sewer gas could contain either explosive gases (*e.g.*, methane) or hazardous chemicals (*e.g.*, hydrogen sulfide, solvents from downstream dry clothes cleaner, etc.) which could lead to death or chronic health problems of those exposed. On a aesthetic basis, homeowner's would be proud to have guests over to their home without the embarrassment of explaining why their home stinks.

Homeowners would save $100 or so since the installation of a trailer trap would no longer be required if the home is completely conventionally vented. It is expected that any additional costs in installing a completely conventional vent system would be offset by the savings realized by the lack of the need for installing a trailer trap.

****Insert Artwork here****

1. 2-A. Pictorial showing difference in construction between an "anti-siphon trap vent device or air admittance valve" system and a conventionally vented system
2. 2-B. Picture of a 4-inch trailer trap

Reference Documents:

1. 05/18/07 e-mail to Scott Needle, M.D., Bay St. Louis Pediatrics

2. 07/23&24/07 e-mails to and from the Centers for Disease Control and Prevention
3. 10/09/07 e-mail to Kevin Dunn, Research Mechanical Engineer, NIOSH, Division of Applied Research & Technology, Centers for Disease Control and Prevention
4. Section 1003.5 of the "Louisiana State Plumbing Code, 2000 Edition" with diagram of trailer trap and vent
5. Section 905.7 of the "Louisiana State Plumbing Code, 2000 Edition" which prohibits the use of "air admittance valves" in plumbing installations which are regulated by the state (i.e., all structures other than mobile/manufactured housing)
6. March 1, 2004 memo from S. Becnel to Sharon Howard, et al., regarding report on Severe Acute Respiratory Syndrome (SARS) transmission in Hong Kong via improperly maintained plumbing
7. Partial copy of "Health Aspects of Plumbing", World Health Organization, 2006 – (see Section 1.2 Removal of Wastes with SARS Case Study 1 on age 4 and also refer to the reference document "WHO, 2003, Final Report: Amoy Gardens WHO Environmental Investigation" which is cited on page 124) [The entire WHO "Health Aspects of Plumbing" document available electronically over the Internet at link below:
[http://www.who.int/water_sanitation_health/publications/plumbinghealthasp.pdf]

Note: Supporting material is available for review at NFPA Headquarters.

This is not original material; its reference/source is as follows:

See substantiation for references.

Committee Meeting Action: Reject

Committee Statement: The substantiation for this proposed change is not consistent with information and data collected by the State Administrative Agencies- SAAs. The SAAs are typically the first to hear of common design problems that impact a measurable number of homes. The MHCC members as well as the HUD staff have not been made aware of this issue as being a widespread problem. It would appear that the cases cited either involved a defective anti-siphon device or the plumbing tree under the sink was not installed properly.

Number Eligible to Vote: 19

Ballot Results: Affirmative: 17 Negative: 2

Explanation of Negative:

JEWELL: I vote to reject the committee's proposal to take final action to reject this proposal. I am not convinced by the description of the committee's consideration that the proposal was seriously investigated. There is no evidence that SAA data from Louisiana (or other states) was systematically reviewed for similar reports, and the fact that MHCC members and/or HUD staff were not previously aware of this issue is not a reason to reject this proposal without such investigation.

LUBLINER: I agree with the proposer that "long-term public health benefits would outweigh any economic concerns related to the initial costs." I have experienced problems with in my HUD-code resulting in water damage and considerable plumber repair costs fixing defective and poorly installed anti-siphon device under my kitchen sink. Although I did not file an SAA claim, the problem was real and MHCC members were made aware of my problems at our meeting. I do not believe the MHCC engaged the SAA on this issue, nor do I believe that the just SAA widespread complaints are needed to justify rejecting this proposal. Finally, I should point out that SAA significant funding problems make them as poor source for gathering complaint information over the past few years.

The proposer notes significant potential health and safety risks in current 3280. None of the MHCC members have any "public health" experience to dispute proposal justification and chose to ignore the significant background research presented by the proposer. The MHCC did not dispute the costs associated with the proposal.

Comment on Affirmative:

VOGT: Since MN has become involved in the On-Site installation inspections of all new Manufactured Homes it has been found that a lot of homes with auto-vents installed in this drainage system will not pass the On-Site System Test for Air Test as specified in 3285.604 as for the 3280 requirements outlined in the 3285 section because of the auto-vents within the home. Still working to determine if problem is auto-vent of how they are being installed by home manufacturer.

3280HUD-1 Log #38 Final Action: Accept
(3280.304)

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
Design and Fabrication of Plywood Sandwich Panels—APA-U 814H, Suppl. 4 ~~1990~~1993.
Substantiation: The above reflects the latest editions of the referenced document. The latest edition, reflect no changes to the content of the documents that would have any impact from an engineering or design perspective.
The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that the designer/engineer will have access to the latest information on the subject in question.
This is not original material; its reference/source is as follows:
Existing 24 CFR
Committee Meeting Action: Accept

3280HUD-2 Log #39 Final Action: Accept
(3280.304)

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
Design and Fabrication of Glued Plywood-Lumber Beams—APA-S~~812Q~~812R, Suppl. 2~~-1992~~1998.
Substantiation: The above reflects the latest editions of the referenced document. The latest edition, reflect no changes to the content of the documents that would have any impact from an engineering or design perspective.
The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that the designer/engineer will have access to the latest information on the subject in question.
This is not original material; its reference/source is as follows:
Existing 24 CFR
Committee Meeting Action: Accept

3280HUD-3 Log #40 Final Action: Accept
(3280.304)

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
Design and Fabrication of Plywood Stressed-Skin Panels—APA-U 813L, Suppl. 3, ~~1990~~1996.
Substantiation: The above reflects the latest editions of the referenced document. The latest edition, reflect no changes to the content of the documents that would have any impact from an engineering or design perspective.
The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that the designer/engineer will have access to the latest information on the subject in question.
This is not original material; its reference/source is as follows:
Existing 24 CFR
Committee Meeting Action: Accept

3280HUD-4 Log #41 Final Action: Accept
(3280.304)

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
Design and Fabrication of All-Plywood Beams, Suppl. 5—APA ~~H815D~~H815E, ~~1989~~1995.
Substantiation: The above reflects the latest editions of the referenced document. The latest edition, reflect no changes to the content of the documents that would have any impact from an engineering or design perspective.
The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that the designer/engineer will have access to the latest information on the subject in question.
This is not original material; its reference/source is as follows:
Existing 24 CFR
Committee Meeting Action: Accept

3280HUD-5 Log #42 Final Action: Accept
(3280.304)

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
~~APA Design/~~Engineered wood Construction Guide ~~, Residential and Commercial—~~APA ~~E30P~~E30U ~~-1996~~2007.
Substantiation: The above reflects the latest editions of the referenced document. The latest edition, reflect no changes to the content of the documents that would have any impact from an engineering or design perspective.
The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that the designer/engineer will have access to the latest information on the subject in question.
This is not original material; its reference/source is as follows:
Existing 24 CFR
Committee Meeting Action: Accept

3280HUD-6 Log #43 Final Action: Accept
(3280.304)

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
~~Construction and Industrial~~Structural Plywood (With Typical APA Trademarks)—PS 1 ~~95~~07.
Substantiation: The above reflects the latest editions of the referenced document. The latest edition, reflect no changes to the content of the documents that would have any impact from an engineering or design perspective.
The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that the designer/engineer will have access to the latest information on the subject in question.
This is not original material; its reference/source is as follows:
Existing 24 CFR
Committee Meeting Action: Accept

3280HUD-7 Log #44 Final Action: Accept
(3280.304)

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
Voluntary Product Standard, Performance Standard for Wood-based ~~Structural~~ Structural-Use Panels PS 2~~-92~~04, ~~1992~~ 2004 (also known as NIST Standard PS 2~~-06~~04).
Substantiation: The above reflects the latest editions of the referenced document. The latest edition, reflect no changes to the content of the documents that would have any impact from an engineering or design perspective.
The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that the designer/engineer will have access to the latest information on the subject in question.
This is not original material; its reference/source is as follows:
Existing 24 CFR
Committee Meeting Action: Accept

3280HUD-9 Log #46 Final Action: Accept
(3280.304)

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
Panel Design Specification—APA ~~D410A~~D510B, ~~2004~~2007.
Substantiation: The above reflects the latest editions of the referenced document. The latest edition, reflect no changes to the content of the documents that would have any impact from an engineering or design perspective. Note that this change also corrects the form number that was published incorrectly in the standard.
The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that the designer/engineer will have access to the latest information on the subject in question.
This is not original material; its reference/source is as follows:
Existing 24 CFR
Committee Meeting Action: Accept

3280HUD-10 Log #47 Final Action: Accept
(3280.304)

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
Panel Design Specification—APA ~~D410A~~D510B, ~~2004~~2007.
Substantiation: The above reflects the latest editions of the referenced document. The latest edition, reflect no changes to the content of the documents that would have any impact from an engineering or design perspective. Note that this change also corrects the form number that was published incorrectly in the standard.
The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that the designer/engineer will have access to the latest information on the subject in question.
This is not original material; its reference/source is as follows:
Existing 24 CFR
Committee Meeting Action: Accept

3280HUD-12 Log #49 Final Action: Accept
(3280.304)

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
Design and Fabrication of Plywood Curved Panels—APA-S ~~811M~~811N, Suppl. 1, ~~1990~~1995.
Substantiation: The above reflects the latest editions of the referenced document. The latest edition, reflect no changes to the content of the documents that would have any impact from an engineering or design perspective.
The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that the designer/engineer will have access to the latest information on the subject in question.
This is not original material; its reference/source is as follows:
Existing 24 CFR
Committee Meeting Action: Accept

3280HUD- Log #50 Final Action: Reject
(3280.308(2)(b))

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
S 3280.308 (2) (b) *Product certification and continuing qualification.* All plywood and particleboard materials to be installed in manufactured homes which are bonded with a resin system or coated with a surface finish containing formaldehyde~~, other than an exclusively phenol formaldehyde resin system or finish~~ shall be certified by a nationally recognized testing laboratory as complying with paragraph (a) of this section. Panels or finishes that use an exclusively phenol-formaldehyde resin system and structural panels that are certified to PS 1 or PS 2 are exempt from this certification process.
Substantiation: Structural panel products certified as PS 1 or PS 2 permit only moisture resistant adhesive systems such as phenol-formaldehyde or methyldiisocyante (MDI). These adhesive systems have been demonstrated to be ultra low emitters such that ongoing evaluation and certification is not necessary. The low formaldehyde emission levels of PS 1 and PS 2 panel products are documented in the following reports:

- APA Technical Report — Structural Wood Panels and Formaldehyde (APA Report SPE-1040). This report presents formaldehyde data on PS 1 and PS 2 panel products. All formaldehyde test data was well below 0.10 ppm when tested freshly after manufacturing and dropped to near zero levels shortly after. In fact, the emission levels were so low it was difficult to measure.
- The attached report of ASTM E1333 results on PS 2 OSB produced with various adhesive systems demonstrate emission levels consistently below 0.05 ppm.

Further justification for exemption of PS 1 and PS 2 panels is as follows:

- PS 1 permits only moisture resistant adhesive systems and they must be qualified to provide excellent bond performance after aggressive vacuum soak and boil conditions. PS 1 does not permit interior type adhesives. As a result, PS 1 plywood uses phenol-formaldehyde adhesive systems.
- PS 2 also permits only moisture resistant adhesive systems that must be qualified to PS 1 (in the case of plywood) or after demonstrating strength retention after aggressive vacuum soak cycles in the case of OSB.
- The *Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products* being promulgated by California's Air Resources Board (CARB) establishes formaldehyde emission levels more stringent than the levels in this HUD standard. Based on the justifications presented above, the CARB rules specifically exempt PS 1 and PS 2 panels.

The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that producers that manufacture known ultra-low formaldehyde emitters will not have to go through the certification process.
This is not original material; its reference/source is as follows:
This proposal is really just a clarification of current statements in the Standard. See Reason Statement above for technical justification.
Committee Meeting Action: Reject
Committee Statement: The MHCC action is based on two factors. The first is that the second group of changes to the standards that have been processed by HUD include revisions that will impact formaldehyde emissions form certain building products.

The second reason is that the US EPA has issued a proposed rule that will result in new regulations. The *Formaldehyde Standards for Composite Wood Products Act* (PL 111-199) is expected to layer in added provisions that will impact formaldehyde emissions as well. The MHCC will revisit the issue (if necessary) in the future once the EPA rules are final.

3280HUD- Log #51 Final Action: Accept
(3280.4)

Submitter: John G. Bradfield, Composite Panel Assn.
Recommendation: Revise text as follows:
CPA -- Composite Panel Association (previously NPA) ~~NPA — National Particleboard Association~~
Substantiation: Organizational Name Change.
Note: Supporting material is available for review at NFPA Headquarters.
This is not original material; its reference/source is as follows:
CPA staff
Committee Meeting Action: Accept

3280HUD-13 Log #52 Final Action: Accept
(3280.304(b)(1))

Submitter: John G. Bradfield, Composite Panel Assn.
Recommendation: Revise text as follows:
Basic Hardboard -- ANSI A135.4-2004 ~~ANSI/AHA A135.4-1982~~
Substantiation: Updated Standard Reference.
Note: Supporting material is available for review at NFPA Headquarters.
This is not original material; its reference/source is as follows:
ANSI A 135.4-2004
Committee Meeting Action: Accept

3280HUD-14 Log #53 Final Action: Accept
(3280.304(b)(1))

Submitter: John G. Bradfield, Composite Panel Assn.
Recommendation: Revise text as follows:
Prefinished Hardboard Paneling -- ANSI A135.5-2004 ~~ANSI/AHA A135.5-1988~~
Substantiation: Updated Standard Reference.
Note: Supporting material is available for review at NFPA Headquarters.
This is not original material; its reference/source is as follows:
ANSI A 135.5-2004
Committee Meeting Action: Accept

3280HUD-15 Log #54 Final Action: Accept
(3280.304(b)(1))

Submitter: John G. Bradfield, Composite Panel Assn.
Recommendation: Revise text as follows:
Hardboard Siding -- ANSI A135.6-2006 ~~ANSI/AHA A135.6-1988~~
Substantiation: Updated Standard Reference.
Note: Supporting material is available for review at NFPA Headquarters.
This is not original material; its reference/source is as follows:
ANSI A 135.6-2006
Committee Meeting Action: Accept

3280HUD-16 Log #55 Final Action: Accept
(3280.304(b)(1))

Submitter: John G. Bradfield, Composite Panel Assn.
Recommendation: Revise text as follows:
~~Wood~~ Particleboard ANSI A208.1-1999 ~~ANSI A208.1-1989~~
Substantiation: Updated Standard Reference.
Note: Supporting material is available for review at NFPA Headquarters.
This is not original material; its reference/source is as follows:
ANSI A208.1-1999
Committee Meeting Action: Accept
Committee Statement: The MHCC notes that HUD has already updated this particular standard.

3280HUD- Log #57 Final Action: Reject
(3280.506(a))

Submitter: Michael Lubliner, Washington State University
Recommendation: Revise section MHCSS 3280.506 (a) Coefficient of Heat Transmission Uo values to reflect cost effective thermal efficiency levels comparable to IECC site built energy codes and consistent with NFPA-501 committee proposals CP- (Log #7):

Zone	Maximum Uo Value
1	0.097 Btu/hr/ft2/F
2	0.067 Btu/hr/ft2/F
3	0.062 Btu/hr/ft2/F

Substantiation: The Housing and Community Development Act of 1987 (HCDA) section 569 Manufactured Housing Construction and Safety Standards states that cost effective conservation standards should be established. It reads as follows:

(1) The federal manufactured home construction and safety standards established by the Secretary under this section shall include preemptive energy conservation standards in accordance with this subsection.

(2) The energy conservation standards established under this subsection shall be cost-effective energy conservation performance standards designed to ensure the lowest total construction and operating costs.

(3) The energy conservation standards established under this subsection shall take into consideration the design and factory construction techniques of manufactured homes and shall provide for alternatives practices that result in net estimated energy consumption equal to or less than the specified standard.

The HUD Uo values were last updated in 1994, and based on HUD sponsored research conducted in 1992. *Revision of the Energy Conservation Requirements in the Manufactured Housing Home Construction and Safety Standards, Pacific Northwest Laboratory (PNL-7109)*

In 2002 USDOE funded another study to update Uo values. *Update of Energy Efficiency Requirements for Manufactured Homes, Pacific Northwest Laboratory (PNL-SA-4119)*

In 2005, the NFPA-501 Committee adopted Uo values less stringent than found to be cost effective in the 2002 PNNL study. Both the 1992 and 2002 studies used fuel cost, fuel type and other economic assumptions which are now outdated.

I recently recommended to MHCC (May 2007) and NFPA 501 (June 2007) that the IECC Uo values should be adopted. My MHCC and NFPA presentation and research cited showed positive consumer monthly cash flow (lower life cycle costs), for IECC Uo values. It was shown that in the increased monthly principle and interest costs were less than the energy savings at current energy prices. The presentation also pointed out that consumer benefits increase as energy costs increase whereas the increase to the mortgage remains fixed, resulting in even higher positive monthly cash flow over the life of the home. Since that time the manufactured housing industry has not presented any cost or energy savings data to dispute this proposal.

Because HUD-code homes are less stringent and preempt state energy codes, Pacific Northwest (PNW) new construction energy conservation programs such as the Northwest Energy Efficient Manufactured Housing Program (using the Energy Star brand) were required to help avoid the construction of new expensive power plants. This utility industry partnership resulted in all 20 PNW manufacturing plants producing over 100,000 energy efficient manufactured homes with Uo values of less than 0.054 BTU/hr/ft2/F. NEEM homes have been shown to be cost effective to new homebuyers even without utility incentives or considering NADA Manufactured Housing Appraisal Guide added resale value. HUD code manufactured housing companies building Energy Star may qualify for $1000 federal energy tax credits, which further increase consumer cost effectiveness if used to reduce first costs to the consumer.

Not only does the proposal benefit to new HUD-code homebuyers, but it also improves our nation’s energy independence and helps to address climate change. Finally, the proposal will also reduce the burden on federal taxpayers who currently subsidize weatherization and utility fuel assistance payments made to low-income occupants of HUD code housing.

If manufacturers want HUD to treat them like site built homes than they should build to site built energy codes. I have submitted to NFPA and MHCC numerous research and analysis documents in support of this proposal. HUD financing (i.e. Fannie Mae, Freddie, FHA, VA etc.) should only be used to finance manufactured housing built to site built energy code levels.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Reject

Committee Statement: The MHCC notes that more current and up to date information concerning Uo values is now available and should be considered by the MHCC. The DOE rule making regulation that is being developed is likely to address this. Also, see MHCC action on 3280 Log #58.

3280HUD- Log #58 Final Action: Reject
(3280.501(e))

Submitter: Michael Lubliner, Washington State University
Recommendation: Revise text as follows:
Sec 501(e) *U-values for any glazing (e.g. window, skylights, and glazed portions of any door) shall be based on tests using NFRC 200, Procedures for determining Fenestration Product Thermal Properties.* This is consistent with NFPA-501 committee proposals CP- (Log #8).
Substantiation: Allowing the use of either AAMA or NFRC test methods guarantees inconsistent product performance and confusion in the marketplace. Unlike NFRC, AAMA does not require labeling of U-values, so neither customer, retailer, manufacturer staff or IPIA know the U-value for a given product. In addition, the IECC, as well as most state energy codes and programs such as Energy Star reference NFRC, not AAMA.
The National Fenestration Rating Council has developed a number of key elements that ensure the accuracy and credibility of its rating and certification program: as noted be low:

- NFRC reviews and approves up-to-date computer simulation tools and thermal testing procedures for obtaining accurate thermal ratings for fenestration products.
- NFRC maintains a list of accredited simulation and testing laboratories qualified to determine the thermal performance of fenestration products through computer modeling and thermal testing.
- NFRC provides for a third party Independent Agent (IA) to review documentation, conduct inspections and approve products for certification and labeling.
- NFRC licenses the manufacturers authorized to label products, permitting the use of the NFRC logo and ratings that appear on the certified product.

Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Reject
Committee Statement: The MHCC notes that more current and up to date information concerning Uo values is now available and should be considered by the MHCC. The DOE rule making regulation that is being developed is likely to address this. Also, see MHCC action on 3280 Log #57.
The MHCC also wishes to note that one rating process (NFRC) permits the Uo value to be shown on the window. When using the AAMA 1503 standard, the Uo value has to be located/determined using a table lookup. The inconsistency between the two approaches will have to be worked out between presumably through the DOE rule making regulation.

3280HUD- (3280) Log #60 Final Action: Reject

Submitter: Michael Lubliner, Washington State University

Recommendation: Revise text as follows:

Insert in the following wording in the appropriate sections of MHCSS. All dishwashers, refrigerators, washing machines, ceiling fans and exhaust fans shall be labeled Energy Star™.

●

Substantiation: The Housing and Community Development Act of 1987 (HCDA) section 569 Manufactured Housing Construction and Safety Standards states that cost effective conservation standards should be established. It reads as follows:

(1) The federal manufactured home construction and safety standards established by the Secretary under this section shall include preemptive energy conservation standards in accordance with this subsection.

(2) The energy conservation standards established under this subsection shall be cost-effective energy conservation performance standards designed to ensure the lowest total construction and operating costs.

(3) The energy conservation standards established under this subsection shall take into consideration the design and factory construction techniques of manufactured homes and shall provide for alternatives practices that result in net estimated energy consumption equal to or less than the specified standard.

I recently recommended to MHCC (May 2007) and NFPA 501 (June 2007) that Energy Star appliances be adopted as requirements in the MHCSS, as they provide positive consumer monthly cash flow over non Energy Star appliances. Increased monthly principle and interest costs of Energy Star appliances are less than the incurred energy savings at current energy prices, especially given the buying power of HUD code manufacturers.

My presentation to NFPA and MHCC pointed out that consumer benefits increase as energy costs increase, whereas the increase to the mortgage remains fixed, resulting in a even higher positive monthly cash flow over the life of the home. Since that time, MHI has not presented any data to dispute the facts in my presentations. Energy Star washing machines also save water, soap and are gentler on fabrics. DOE, HUD-Path and EPA all advise the consumer to purchase “cost effective” Energy Star™ appliances.

Not only will the proposal benefit new HUD-code homebuyers, but it will also improve energy independence and help to address climate change. The proposal will also reduce the burden on federal taxpayers who currently subsidize weatherization and utility fuel assistance payments made to low-income occupants of HUD code housing.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Reject

Committee Statement: While Energy Star™ appliances are popular, and it is likely that most consumers would choose such appliances, the MHCC does not believe that use of such appliances should become a mandate. DOE regulations under the National Appliance Energy Conservation Act (NAECA) established new efficiency standards for certain heating and cooling systems beginning in 2006. It is possible that NAECA will extend to other types of appliances such as washers, dryers and dishwashers among others. At the federal level, DOE has been given the broad responsibility to establish a set of all encompassing criteria for energy use including for manufactured homes. The MHCC is willing to reconsider the suggested mandate to use Energy Star™ appliances if that becomes consistent with the DOE plan.

Number Eligible to Vote: 19

Ballot Results: Affirmative: 16 Negative: 3

Explanation of Negative:

BERGER: The decision not to embrace the concept of mandating EnergyStar rated appliances wholeheartedly as an absolute minimum performance standard is extremely short-sighted and is indicative of the reasons for the industry's decline and contributes to the public's perception that manufactured housing is sub-standard housing. The fact that a lower-income family may opt for a less expensive, less efficient appliance for whatever reason (be it ignorance of the value, basic house affordability, or any other reason) is no reason to allow that to happen. If the buyer would not qualify for a loan merely because the cost of the appliances, then that buyer should not qualify to purchase the home. Society must stop defining "cost" as the initial purchase price; it must begin to define cost as the overall cost to own, operate and maintain the item they are purchasing. No service has been provided to a lower income family by barely qualifying them as a purchaser for a home that will cost them more and more to own over the life of the home. That is the same mentality that the banks used to qualify individuals to purchase homes they had no ability to pay for using adjustable rate mortgages thereby eventually causing the current housing mortgage meltdown.

JEWELL: I vote to reject the committee's proposal to take final action to reject this proposal. This proposal should be accepted by the MHCC.

LUBLINER: I agree with the MHCC comments that DOE has been given the broad responsibility to establish a set of all encompassing criteria for energy use including for manufactured homes. Therefore I strongly encourage DOE and HUD to adopt this proposal. While NAECA does limit states from adopting higher than minimum NAECA standards, it does not limit HUD or DOE the case of federally preemptive HUD-code housing.

The National Appliance Energy Conservation Act (NAECA) does apply to residential appliances in this proposal therefore the MHCC justification to reject this proposal is incorrect.

The MHCC rejection did not dispute the following proposal justifications:

1. The Housing and Community Development Act of 1987 (HCDA) section 569 Manufactured Housing Construction and Safety Standards states that cost effective conservation standards should be established and be cost-effective (e.g. designed to ensure the lowest total construction and operating costs)"

2. Energy Star is currently consumer "cost effective" and energy costs increases result in higher positive monthly cash flow over the life of the appliance.

3. Will improve energy independence and help address climate change.

4. Will also reduce the burden on federal taxpayers who currently subsidize weatherization and utility fuel assistance payments made to low-income occupants of HUD code housing with the low appliance efficiency.

5. Energy Star appliances are popular, and it is likely that most consumers would choose such appliances given the choice. Although the MHCC does not believe that use of such appliances should become a mandate, they did not dispute the justification that:

- Few manufacturer stock Energy Star refrigerators, which means the consumer does not benefit from the manufacturer "bulk procurement buying power" and consumer is left to a more costly "special order". If the proposal is adopted the default appliance would be Energy Star and consumers still have the option to purchase for a less efficient non-Energy Star appliance.
- The MHCC manufacturers were unwilling to provide any cost data on upgrade costs for Energy Star refrigerators or appliances at the meeting.
- Few retailers offer Energy Star refrigerators on lot models. During the committee discussion, the MHCC retailer would not provide upgrade costs for Energy Star refrigerators or other appliances for lot and/or pre-order homes he sells. This is likely because it appear that many retailers do not actively promote Energy Star. For example, there is no mention of Energy Star appliances on the retailer web-site. http://www.homemart.us/models.htm or other major HUD-code retailers.

SHEAHAN: I feel the proper approach would be to adopt universal Energy Star standards for the industry that could only be circumvented by an intentional "opting-out" by a properly informed consumer. Raising the industry standard would also raise the perceived quality and value of manufactured housing.

Comment on Affirmative:

GORMAN: While I support further exploration of utilizing Energy Star appliances and furnaces, I can not support an effort to make them mandatory when we have no idea of the added cost for the consumer. No one can tell us at this point how long the repayment period would be for the increase in cost to upgrade to the Energy Star proposals. On a thirty year loan does it add $20 a month or $200 a month? We do not have the answer. Once we know that answer the question becomes how much will the Energy Star upgrades reduce his utility payments each month? This is another question to which we have not seen the answer. Being Green for Green's sake may be a detriment to the consumer if he has to pay more every month to be Green.

3280HUD- Log #61 Final Action: Reject
(3280.103)

Submitter: Michael Lubliner, Washington State University
Recommendation: Revise text as follows:
This proposal seeks to require Energy Star™ compliant energy efficient lighting systems:
Sec. 3280.103 Light and ventilation.
(a) Lighting. Each habitable room shall be provided with exterior windows and/or doors having a total glazed area of not less than 8 percent of the gross floor area.
(1) Kitchens, bathrooms, toilet compartments, laundry areas, and utility rooms may be provided with artificial light in place of windows.
(2) Rooms and areas may be combined for the purpose of providing the required natural lighting provided that at least one half of the common wall area is open and unobstructed, and the open area is at least equal to 10 percent of the combined floor area or 25 square feet whichever is greater.
(3) At least 80% of light bulbs or fixtures shipped with the home shall be Energy Star™ labeled.
Substantiation: The Housing and Community Development Act of 1987 (HCDA) section 569 Manufactured Housing Construction and Safety Standards states that cost effective conservation standards should be established. It reads as follows:
(1) The federal manufactured home construction and safety standards established by the Secretary under this section shall include preemptive energy conservation standards in accordance with this subsection.
(2) The energy conservation standards established under this subsection shall be cost-effective energy conservation performance standards designed to ensure the lowest total construction and operating costs.
(3) The energy conservation standards established under this subsection shall take into consideration the design and factory construction techniques of manufactured homes and shall provide for alternatives practices that result in net estimated energy consumption equal to or less than the specified standard.
I recently recommended to MHCC (May 2007) and NFPA 501 (June 2007) that Energy Star lighting should be adopted. All consumer information from HUD PATH, USDOE Building America and EPA Energy Star suggests positive consumer monthly cash flow for Energy Star lighting over standard incandescent lighting. The increased mortgage costs associated with Energy Star lighting are less than the incurred energy savings at current energy prices. Consumer benefits from Energy Star ™ lighting increase as energy costs increase, whereas mortgage costs remain fixed, resulting in higher positive monthly cash flows over the life of the home. MHI has not presented any data to dispute the lighting facts in my presentations to the MHCC and NFPA-501.
Energy Star lighting will also reduce homeowner air conditioning costs because they provide less waste heat. Replacement costs are also less, since they last 5-10 times longer than incandescent bulbs. Current Energy Star lighting technologies are reliable and provide similar lighting quality and performance as incandescent bulbs. The proposal provides flexibility by allowing for 20% of the fixtures to use incandescent lighting.
Not only will the adoption of this proposal benefit new HUD-code homebuyers, but it will also help achieve the goals of energy independence and climate change mitigation. The proposal will also reduce the burden on federal taxpayers who currently subsidize weatherization and utility fuel assistance payments made to low-income occupants of HUD code housing.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Reject
Committee Statement: The MHCC notes that this will be standard industry practice in the future regardless of what the MHCC would recommend. Federal law will be phasing out incandescent light bulbs in the not too distant future (2012) thus any change recommended by the MHCC would be unlikely to be implemented before the broad federal limitations are in place.
An item directly related to this discussion was if the MHCC or HUD would have to consider, in the future, any special provisions concerning shipping of fluorescent lights across state lines as some states have implemented some special use and handling procedures for such light bulbs.

3280HUD- (3280) Log #62 Final Action: Reject

Submitter: Michael Lubliner, Washington State University

Recommendation: Revise text as follows:

Insert in the following wording in the appropriate sections of MHCSS. All gas furnaces, heat pumps and air conditioning units shipped with and/or installed in the factory shall be labeled as Energy Star™.

Substantiation: The Housing and Community Development Act of 1987 (HCDA) section 569 Manufactured Housing Construction and Safety Standards states that cost effective conservation standards should be established. It reads as follows:

(1) The federal manufactured home construction and safety standards established by the Secretary under this section shall include preemptive energy conservation standards in accordance with this subsection.

(2) The energy conservation standards established under this subsection shall be cost-effective energy conservation performance standards designed to ensure the lowest total construction and operating costs.

(3) The energy conservation standards established under this subsection shall take into consideration the design and factory construction techniques of manufactured homes and shall provide for alternatives practices that result in net estimated energy consumption equal to or less than the specified standard.

I recently recommended to MHCC (May 2007) and NFPA 501 (June 2007) that Energy Star gas furnaces, heat pumps and air-conditioners be adopted as part of the MHCSS, on the basis that they generally provide positive consumer monthly cash flow compared to non-Energy Star HVAC systems. As a premium product, Energy Star HVAC costs more, resulting in increased mortgage costs; these increases, are generally less than the energy savings (at current energy prices,) and are further offset by - the buying power of HUD code manufacturers. Consumer benefits will increase further as energy costs increase, whereas mortgage costs will remain fixed, resulting in higher positive monthly cash flows over the life of the home.

MHI has not presented any data to dispute the facts in my presentations to the MHCC and NFPA-501. My ASHRAE peer reviewed 2007 paper (attached) indicated a national average Energy Star™ gas furnace savings over $60 per year at current natural gas prices. Savings with propane are over $120/year. The manufacturer's additional cost for the Energy Star furnace is $400-$500, with expected system life of 20-30 years. Market research suggests that the majority of HUD-code listed furnaces sold last year in retrofit market were Energy Star™, while in new HUD-code homes the majority were non-Energy Star™ units. Failure to require efficient HVAC is a significant lost opportunity for homebuyers. In addition to energy efficiency benefits, Energy Star™ gas furnaces provide more flexibility in terms of furnace location and wall venting.

Consumers also benefit from Energy Star™ heat pumps and air-conditioning, which provide cost-effective energy savings and increased comfort.

Not only does the proposal benefit new HUD-code homebuyers, but it also improves energy independence and helps to mitigate climate change. The proposal will also reduce the burden on federal taxpayers who currently subsidize weatherization and utility fuel assistance payments made to low-income occupants of HUD code housing.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Reject

Committee Statement: While related to the action on Log #60, this proposed change limits itself to the larger, fixed types of equipment that are found in the home. While the MHCC sees the benefit of having a home qualify as an Energy Star™ home, it is equally difficult to mandate a change for a performance level that is nice to have but perhaps not absolutely necessary. The option to select Energy Star™ qualifying gas furnaces, heat pumps and air conditioning units should continue to be just that-an option that can be determined by the purchaser.

Number Eligible to Vote: 19

Ballot Results: Affirmative: 13 Negative: 6

Explanation of Negative:

BERGER: As this proposal was to mandate EnergyStar HVAC systems, which typically cost the homeowner far more in energy costs to operate than household appliances, I feel the decision by the MHCC to reject this proposal was a far greater error that the rejection of Proposal Log #60. This decision, for all the reasons I state in my response to Proposal Log #60 action is just wrong; wrong for the industry, wrong for the consumers, and absolutely wrong for the environment!!

JEWELL: I vote to reject the committee's proposal to take final action to reject this proposal. This proposal should be accepted by the MHCC.

LUBLINER: I agree with the MHCC comments that DOE has been given the broad responsibility to establish criteria for

energy use including for manufactured homes. Therefore I strongly encourage DOE and HUD to adopt this proposal. While NAECA does limit states from adopting higher than minimum NAECA standards, it does not limit HUD or DOE the case of federally preemptive HUD-code housing.

The MHCC rejection did not dispute the following proposal justifications:

- The Housing and Community Development Act of 1987 (HCDA) section 569 Manufactured Housing Construction and Safety Standards states that cost effective conservation standards should be established and be cost-effective (e.g. designed to ensure the lowest total construction and operating costs)"
- Energy Star gas furnaces are currently consumer "cost effective" and energy costs increases result in higher positive monthly cash flow over the life of the appliance.
- Will improve energy independence and help address climate change.
- Will also reduce the burden on federal taxpayers who currently subsidize weatherization and utility fuel assistance payments made to low-income occupants of HUD code housing with the low appliance efficiency.
- Energy Star HVAC is very popular, and it is likely that most consumers would choose Energy Star gas furnaces if given the choice. Although the MHCC does not believe that use of such equipment should become a mandate, they did not dispute the cost or energy savings justification in the proposal.
- Few manufacturer stock Energy Star gas furnaces, which means the consumer does not benefit from the manufacturer "bulk procurement buying power" and consumer if left to be charge as a "special order". The MHCC manufacturers were unwillingly willing to provide any cost data on upgrade costs for Energy Star gas furnaces. If the proposal passes, the default gas furnace would be Energy Star and consumers could always have the option to purchase for a less efficient non-Energy Star appliance. The impact of other HVAC system is minimal since HUD-code manufacturers rarely ship AC and/or heat pumps with the home anyway.
- Few retailers offer Energy Star HVAC systems on lot models. For example, there is no mention of Energy Star HVAC systems anywhere on a major retailer web-site http://www.homemart.us/models/htm

SHEAHAN: (Comment used for LOG # 60 applies to this proposal as well.)

WEINERT: 1. Energy savings is critical for the affordability and livability of manufactured housing products. Requiring heating and cooling equipment installed in manufactured homes to meet the energy star requirements helps mitigate high costs of operation of a home in winter and summer seasons for low-income consumers.

VOGT: As per discussion during the meeting of this proposed issue I believe there is a need to require major factory installed appliances to be labeled and rated as Energy Star.

Comment on Affirmative:

GORMAN: While I support further exploration of utilizing Energy Star appliances and furnaces, I can not support an effort to make them mandatory when we have no idea of the added cost for the consumer. No one can tell us at this point how long the repayment period would be for the increase in cost to upgrade to the Energy Star proposals. On a thirty year loan does it add $20 a month or $200 a month? We do not have the answer. Once we know that answer the question becomes how much will the Energy Star upgrades reduce his utility payments each month? This is another question to which we have not seen the answer. Being Green for Green's sake may be a detriment to the consumer if he has to pay more every month to be Green.

3280HUD- Log #65 Final Action: Reject
(3280.508(e))

Submitter: Michael Lubliner, Washington State University
Recommendation: Revise text as follows:
Adopt NFPA-501 A.8.7.1 in section MHCSS 3280.508 (e).
To minimize the cooling load of homes located in Zone 1 of figure 8.6, the use of overhangs, awnings, or other permanent shading devices or the use of glazing with 0.040 solar heat gain coefficient (SHGC) for double pane windows, and 0.060 SHGC for single pane windows with or without storm windows, shall be used. SHGC shall be based on tests using the NFRC 200, *Procedures for determining Fenestration Product Thermal Properties.* This is consistent with NFPA-501 committee proposals CP- (Log #9).
Substantiation: Research from a variety of sources suggests that window heat gain is a large part of cooling loads in hot climates. A recent carefully controlled experiment in Florida showed that low SHGC glazing reduced space conditioning needs by 15% in two otherwise similar homes. Savings in manufactured homes are likely to be greater, since there are typically no overhangs and often little in the way of site shading. The National Fenestration Rating Council (NFRC) rates manufactured window Solar Heat Gain Coefficients. Since windows are a very large part of cooling loads in hot climates, SHGC should be part of the standard used for manufactured homes sold in those locations. SHGC values of 0.6 can be achieved readily and inexpensively, while helping homeowners in hot climates to control space conditioning costs.
The previous NFPA-501 committee did not dispute above referenced research. The impact of adopting this proposal into the MHCSS is at least a 15% reduction in AC sizing in cooling climates. The Manufactured Housing Research Alliance (MRHA) sizing of AC systems in manufactured homes suggests a 1/2 ton AC savings from the use of SHGC values presented in this proposal. The cost savings in a half-ton reduction in air conditioning size will more than offset the incremental cost of lower SHGC windows. The proposal will also reduce the UV deterioration of furnishings and floor coverings.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Reject
Committee Statement: Although the NFRC provision is used on every other building in the US except manufactured homes, the MHCC expects that the DOE rule making regulation that is being developed is likely to address this.

3280HUD- Log #66 Final Action: Reject
(3285.403)

Submitter: James P. Lozier, Hurricane Harness Corp.
Recommendation: Add text as follows:
INTERLOCKING METAL PAN MOBILE HOME ROOF PROTECTION
HURRICANE HARNESS (over-the-roof) Tie-DOWN SYSTEM
This Proposal is Predicated on the Belief;
Whereas; we have found that the bulk of instances, when interlocking aluminum metal pan roof systems are exposed to extreme high winds, such as a hurricane or the outer band winds of a tornado. un-repairable damage occurs to the overall building structure once the fasteners attaching the metal roof panels to the structural frame begin to tear or rip through the aluminum metal pan base, under the pressure differentials (lift) created by airfoil (vacuum) as a consequence of the high velocity winds passing over the surface plane of the roof. This event becomes compounded by the high velocity of wind entering the carport or other building add-on causing a mode of (wind capture), a formative release of energy forces the underside of the roof panels to lift resulting in complete devastation to the roof system, in addition to the roof line/siding section, where developments may become less than a desirable situation to the overall building structure and to the homeowner.
To mitigate; this negative force of pressure differential, pre-installed aluminum tubular channels are permanently fastened perpendicular across the top of the interlocking ribs of the metal roof system without disturbing the flow of rain water at the eave, mid span, and ridge locations of the building. Variable lengths of an extreme strong, low elongation strap are cut to length, placed over the channels and fastened into ratchets which attach to a variety of anchoring methods on opposite sides of the building. This engineered design provides an uninterrupted continuous load path from one anchor to the other. The ratchets apply a uniform counteractive load throughout the channel systems and throughout the entire roof assembly. The structure literally becomes sandwiched within the strapping and the anchors with addition to providing a positive dead load to the outer wall systems and column supports, increasing the resistance to the lateral wind force being applied to the main structure during a storm event.
Property loss; as a result of Hurricane Andrew on August 24, 1992, and most recently, Hurricane Charlie on August 13, 2004, demonstrated the vulnerability to manufactured homes in high wind zones. Thus, to prevent future storms ending in similar fashion, the (FMHCSS), should consider this secondary measure of protection which once applied, will visually alleviate any unforeseen building deficiencies within the structural confines of the building.
The Hurricane Harness (over-the-roof) Tie-Down System; provides protection to mobile homes. In collaboration with the late Honorable Dr. Herbert Saffir, co-writer to the Saffir-Simpson scale; found that in the bulk of instances, when a category 2 hurricane strikes land, winds (96-110), the safety and security of a mobile home becomes greatly jeopardized. His analysis of this safety devise, led us to the development of our strong, low elongation strap design. Through compliance with the (NFPA), we will greatly reduce he risk of property loss caused by hurricanes and reduce the overwhelming financial burdens placed upon our State and Federal governments post storm recovery efforts following the aftermath, from future hurricane disasters.

Substantiation: Hurricane Resistant Mobile Home with Add-On, Over-the Roof Structure Tie-Down System.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Reject
Committee Statement: The proposal did not include any specific language for use of the tie down system. The MHCC did not know how to develop language that would be appropriate for inclusion in CFR Title 24, Part 3285. Development of performance language for 3285.403 that broadly addresses a tie down system to supplement the current anchoring criteria might be a subject to be considered by the MHCC in the future.
In addition to the concerns noted above and perhaps most important, the system that is described appears to be of a proprietary nature. If the submitted system was accepted, this could result in having a requirement in the standard that might only be capable of being designed and installed by a sole source. This is generally a circumstance that standards of any sort should avoid at all cost.
Number Eligible to Vote: 20
Ballot Results: Affirmative: 20

3280HUD- Log #67 Final Action: Reject
(3280.308(2)(b))

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:
S 3280.308 (2) (b) *Product certification and continuing qualification.* All plywood and particleboard materials to be installed in manufactured homes which are bonded with a resin system or coated with a surface finish containing formaldehyde, other than an exclusively phenol-formaldehyde resin system or finish or structural panel products certified as U.S. PS 1 or U.S. PS 2, shall be certified by a nationally recognized testing laboratory as complying with paragraph (a) of this section.
Substantiation: Structural panel products certified as PS 1 or PS 2 permit only moisture resistant adhesive systems such as phenol-formaldehyde or methyldiisocyante (MDI). These adhesive systems have been demonstrated to be ultra low emitters such that ongoing evaluation and certification is not necessary. The low formaldehyde emission levels of PS1 and PS 2 panel products are documented in the following reports:

- APA Technical Report — Structural Wood Panels and Formaldehyde (APA Report SPE-1040).

This report presents formaldehyde data on PS 1 and PS 2 panel products. All formaldehyde test data was well below 0.10 ppm when tested freshly after manufacturing and dropped to near zero levels shortly after. In fact, the emission levels were so low it was difficult to measure.

- The attached report of ASTM E1333 results on PS 2 OSB produced with various adhesive systems demonstrate emission levels consistently below 0.05 ppm.

Further justification for exemption of PS 1 and PS 2 panels is as follows:

- PS 1 permits only moisture resistant adhesive systems and they must be qualified to provide excellent bond performance after aggressive vacuum soak and boil conditions. PS 1 does not permit interior type adhesives. As a result, PS 1 plywood uses phenol-formaldehyde adhesive systems.
- PS 2 also permits only moisture resistant adhesive systems that must be qualified to PS 1 (in the case of plywood) or after demonstrating strength retention after aggressive vacuum soak cycles in the case of OSB.
- The *Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products* being promulgated by California's Air Resources Board (CARB) establishes formaldehyde emission levels more stringent than the levels in this HUD standard. Based on the justifications presented above, the CARB rules specifically exempt PS 1 and PS 2 panels.

The updating of the referenced document has no impact on the cost in either direction.
The benefit from the use of this updated document is that producers that manufacture known ultra-low formaldehyde emitters will not have to go through the certification process.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Reject
Committee Statement: The MHCC action is based on two factors. The first is that the second group of changes to the standards that have been processed by HUD include revisions that will impact formaldehyde emissions form certain building products.

The second reason is that the US EPA has issued a proposed rule that will result in new regulations. The *Formaldehyde Standards for Composite Wood Products Act* (PL 111-199) is expected to layer in added provisions that will impact formaldehyde emissions as well. The MHCC will revisit the issue (if necessary) in the future once the EPA rules are final.

3280HUD- Log #68 Final Action: Reject
(3280.308(2)(b))

Submitter: Edward L. Keith, APA - The Engineered Wood Assn.
Recommendation: Revise text as follows:

Product certification and continuing qualification. All plywood and particleboard materials to be installed in manufactured homes which are bonded with a resin system or coated with a surface finish containing formaldehyde~~, other than an exclusively phenol-formaldehyde resin system or finish~~ shall be certified by a nationally recognized testing laboratory as complying with paragraph (a) of this section. Panels or finishes that use an exclusively phenol-formaldehyde resin system and structural panels that are certified to PS 1 or PS 2 are exempt from this certification process.

Substantiation: Structural panel products certified as PS 1 or PS 2 permit only moisture resistant adhesive systems such as phenol-formaldehyde or methyldiisocyante (MDI). These adhesive systems have been demonstrated to be ultra low emitters such that ongoing evaluation and certification is not necessary. The low formaldehyde emission levels of PS1 and PS 2 panel products are documented in the following reports:

- APA Technical Report — Structural Wood Panels and Formaldehyde (APA Report SPE-1040).

This report presents formaldehyde data on PS 1 and PS 2 panel products. All formaldehyde test data was well below 0.10 ppm when tested freshly after manufacturing and dropped to near zero levels shortly after. In fact, the emission levels were so low it was difficult to measure.

- The attached report of ASTM E1333 results on PS 2 OSB produced with various adhesive systems demonstrate emission levels consistently below 0.05 ppm.

Further justification for exemption of PS 1 and PS 2 panels is as follows:

- PS 1 permits only moisture resistant adhesive systems and they must be qualified to provide excellent bond performance after aggressive vacuum soak and boil conditions. PS 1 does not permit interior type adhesives. As a result, PS 1 plywood uses phenol-formaldehyde adhesive systems.
- PS 2 also permits only moisture resistant adhesive systems that must be qualified to PS 1 (in the case of plywood) or after demonstrating strength retention after aggressive vacuum soak cycles in the case of OSB.
- The *Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products* being promulgated by California's Air Resources Board (CARB) establishes formaldehyde emission levels more stringent than the levels in this HUD standard. Based on the justifications presented above, the CARB rules specifically exempt PS 1 and PS 2 panels.

The updating of the referenced document has no impact on the cost in either direction.

The benefit from the use of this updated document is that producers that manufacture known ultra-low formaldehyde emitters will not have to go through the certification process.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Reject

Committee Statement: The MHCC action is based on two factors. The first is that the second group of changes to the standards that have been processed by HUD include revisions that will impact formaldehyde emissions from certain building products.

The second reason is that the US EPA has issued a proposed rule that will result in new regulations. The *Formaldehyde Standards for Composite Wood Products Act* (PL 111-199) is expected to layer in added provisions that will impact formaldehyde emissions as well. The MHCC will revisit the issue (if necessary) in the future once the EPA rules are final.

3280HUD- Log #69 Final Action: Accept in Principle
(710(d))

Submitter: Kevin G. Jewell, Austin, TX
Recommendation: Revise text to read as follows:
3280.710(d) Venting system terminations shall be not less than ~~three~~ ten feet from any motor-driven air intake discharging into habitable areas.
Substantiation: Per public testimony, three foot separation is a potential air quality safety hazard.
This change is intended to reduce that safety hazard.
Public Testimony implies benefit of health and marketing outweighs compliance costs.
Committee Meeting Action: Accept in Principle
Revise the requirement as follows:
3280.710(d) Venting Systems. Venting systems, when located within 10 feet of any motor driven air intake discharging into habitable areas, must terminate at least 3 feet above the intake.
Committee Statement: This change accomplishes what the submitter intended but clarifies that it only applies when an air intake discharges into a habitable space. The revised language also clarifies a possible misinterpretation that would have required a 10 foot tall stack.
Number Eligible to Vote: 20
Ballot Results: Affirmative: 20
Comment on Affirmative:
JEWELL: As a technical note, the MHCC adopted this language in response to HUD's proposal on Venting system terminations. No formal action was taken on Log #69.
LUBLINER: MHCC should adopt ASHRAE standard 62.2-2010 and not "cherry pick."
SANTANA: I affirm The MHCC action to accept in principle but would like to comment that the proposed text needs to be revised. It needs to be clear that the 10 ft horizontal and 3 ft vertical requirements will only apply to noxious and hazardous exhaust vents, I would like to note that section R303.4.1 of the IRC excludes exhaust vents from dwelling unit bathrooms, toilet rooms and kitchens from this requirement and that the vertical requirement is 2 ft instead of 3 ft in both the IRC and IPC and should be changed.
Source:09 IRC section R303.4.1, section P3101.5 and 09 IPC section 904.5.
SHEAHAN: I agree with the Committee's recommendation to accept in principle and feel comprehensive testing under a variety of real-life situations is warranted to determine the efficacy of increasing roof vent separation/extension in minimizing the possibility of hazardous exhaust fumes re-entering the home.

3280HUD- Log #70 Final Action: Accept in Part
(3280.703, 3280.707(a)(2))

Submitter: Donald Emen, Rinnai America Corp.
Recommendation: Revise text to read as follows:
3280.703 Minimum standards. Under *APPLIANCES*. In this section, I would like to add ANSI Z21.86 standard. The justification for this addition is to include this standard for vented space heating appliances or direct heating equipment.
Vented Gas-Fired Space Heating Appliances - ANSI Z21.86-2008, with Addendum Z21 86a-2005 and Z21.86b-2007.
Under *APPLIANCES*. In this section, I would like to add ASHRAE Standard 103. The justification for this addition is to include the standard used in testing for the Annual Fuel Utilization Efficiency (AFUE) for vented space heating appliances or direct heating equipment:
Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers - ANSI/ASHRAE standard 103-2007 (Supersedes ANSI/ASHRAE Standard 103 - 1993)
3280.707 (a)(2) Heat producing appliances.
Revise this section to add the AFUE as required for Direct Heating Equipment as per the DOE standard 10 CFR 430 Part 32(i).
Gas and oil Burning comfort heating appliances shall have a flue loss of not more than 25 percent, ~~and~~ a thermal efficiency and annual fuel utilization efficiency of not less than that specified in nationally recognized standards (See 3280.703)
Substantiation: The purpose of this proposal is to add the ANSI Z21.86 for gas-fired space heating appliance to the MHCC. This standard covers a wide variety of products -- including direct-vent wall furnaces.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Accept in Part
Accept the change to 3280.703 as submitted.
Accept in Principle the change to 3280.707(a)(2) as follows:

3280.707 (a)(2) Heat producing appliances.

Gas and oil Burning comfort heating appliances shall have a flue loss of not more than 25 percent, ~~and~~ a thermal efficiency ~~and~~ or annual fuel utilization efficiency of not less than that specified in nationally recognized standards (See 3280.703)

Committee Statement: When this was originally reviewed by the committee, they did not have sufficient documentation relating to the "...annual fuel utilization of efficiency..." criteria mentioned in the second part of the change. The proponent provided additional information and the MHCC agrees that the manufacturer should have to show a thermal efficiency or an annual fuel utilization efficiency but not both as originally submitted.
Number Eligible to Vote: 20
Ballot Results: Affirmative: 19 Negative: 1
Explanation of Negative:
JEWELL: I believe the MHCC should adopt this proposal in its entirety rather than in part, as the rejected language would have brought the annual fuel utilization efficiency of heat producing appliance in line with referenced national standards. I encourage the submitter to re-submit this proposal with additional supporting information about the rejected language, as the minutes reflect this change was rejected for lack of supporting documentation rather than on its own merits.

3280HUD- Log #71 Final Action: Accept
(3280.703, 3280.707(d)(2))

Submitter: Donald Emen, Rinnai America Corp.
Recommendation: Add text to read as follows:
3280.703 Minimum standards. Under *APPLIANCES.* In this section, I would like to add ANSI Z21.10.3 volume III standard. The justification for this addition is to include the standard for tankless water heaters with input rate between 75,000 Btu/hr. and 400,000 Btu/hr:
Gas Water Heaters Vol. 1, Storage Water Heaters With Input Ratings of 75,000 BTU per hour or Less-ANSI Z21.10.1-1990, With Addendum Z21.10.1a-1991 and Z21.10.1b-1992.
Gas Water Heaters Vol. 3, Storage Water Heaters With Input Ratings Above 75,000 BTU per hour, Circulating and Instantaneous - ANSI Z21.10.3-2004, With Addendum Z21.10.3a-2007 and Z21.10.3b-2008.
3280.707(d)(2) Heat producing appliances.
Under Performance efficiency. After section 2, I would like to add a new section (3), dedicated to gas-fired tankless water heaters. The reason being that the tankless water heaters have separate efficiency performance table (as per DOE standard 10 CFR 430, Part 32, Section d) to the tank water heaters. Therefore, I believe combining the two efficiency tables would be confusing.
(3) All gas-fired instantaneous water heaters shall have an energy factor (EF), the rated volume in gallons (V) and thermal efficiency (E_t), as described below. The method of test of EF and V shall be as described in the DOE standard 10 CFR Part 430, Appendix E, and the method of test of E_t shall be as described in section 2.9 of Gas Water Heaters Vol.3, Storage Water Heaters With Input Ratings Above 75,000 BTU per hour, Circulating and Instantaneous - ANSI Z21.10.3-2004, With Addendum Z21.10.3a-2007 and Z21.10.3b-2008.

Insert table here

Substantiation: The purpose of this proposal is to add the ANSI Z21.10.3 Standard, Volume III for water heaters with input rate above 75,000 BTUH to the MHCC. This standard covers a wide variety of products -- including tankless water heaters. The tankless water heaters are classified as energy efficient water heaters.
Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Accept

Size Category (Input)	Subcategory or Rating Condition	Performance Required	Test Procedure
>50,000 Btu/h and <200,000 Btu/h	>4000 (Btu/h)/gal and <2 gal	0.62-0.0019V EF	DOE 10 CFR Part 430
>200,000 Btu/h	>4000 (Btu/h)/gal and <10 gal	80% E_t	ANSI Z21.10.3

3280HUD- Log #72 Final Action: Reject
(3280.806)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Recommendation: Add text to read as follows:
(a) All receptacle outlets shall be:
(1) Of grounding type;
(2) Installed according to Article 406.3 of the National Electrical code, NFPA No. 70-2005.
(3) Except when supplying specific appliances, be parallel-blade, listed tamper-resistant, 15-ampere, 125-volt, either single or duplex.
Substantiation: The 2008 National Electrical Code has adopted requirements for tamper-resistant receptacles as follows:
"406.11 Tamper-Resistant Receptacles in Dwelling Units. In all area specified in 210.52, all 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles." 210.52 specifies required receptacles for dwelling units, where a dwelling unit is defined as "A single unit, providing complete and independent living facilities for one or more persons, including permanent provisions for living, sleeping, cooking and sanitation."
What follows is essentially the substantiation provided by NEMA for the 2008 National Electrical Code development cycle.
Pediatric Burns:
During a 10-year period, from 1991 to 2001, over 24,000 children in the United States were injured when they inserted foreign objects into electrical receptacles. Every year an average of at least 2,400 children are injured when tampering with electrical receptacles.
I have included a summary of electrical burn and shock incidents occurring to children under the age of 10. This information is taken from the National Electrical Injury Surveillance System (NEISS) for the years 1991 to 2001 Electronic Injury surveillance System (NEISS) is a national probability sample of hospitals in the U.S. and its territories. Patient information is collected from each NEISS hospital for every emergency visit involving an injury associated with consumer products. From this sample, the total number of product-related injuries treated in hospital emergency rooms nationwide can be estimated.
NEISS collects data from a statistically valid sample of hospitals nationwide. NEISS calculates historic estimates based on these samples using statistical tools (weights, sampling error, trend data, adjustment for changes in sampling frame...). NEISS provides at least 2 numbers for each query conducted on their web site:
- The first number is the actual sample for monitored hospitals. These are actual cases that were communicated to NEISS.
- The second number is the historic estimate calculated by NEISS as explained above.

For example, the 2002 NEISS report shows a sample count of 129 electrical burn and shock incidents and a historical estimate of 3277.
For the purpose of this analysis, we calculated a ratio, based on 10 years of data, between sample and historic estimate (we queried receptacle-related incidents concerning children ages 1 month to 10 years old). We then applied this ratio to our analysis. The intent is not to provide exact values but to attribute weight to major topics (age, type of injury, objects used...). These estimates have been calculated to identify the major issues associated with children tampering with electrical receptacles.
Analysis of the NEISS information shows that at least 71 percent of all incidents occur at home, making dwelling units the prime location for receptacle-related pediatric electric burns. The vast majority of injured children are under age 6. Victims age 2 and under represent 39 percent of cases, while those ages 3 to 6 represent 50 percent of all cases.
The incidents occurred as the result of the child inserting an object into a receptacle. The following is a breakdown of the percent of incidents in which a child inserted a specific type of object into a receptacle:

INSERT TABLE 3280HUD_L72 HERE

Many of these objects are not perceived as dangerous by parents, perhaps explaining young children's easy access to them and frequent rate of insertion.
The results of these incidents are very rarely fatal, but will result in electric shocks and mild to sever burns. Most incidents are relatively superficial first or second-degree burns, where children are treated for reddened skin or blisters

Hairpin	32 percent
Key	17 percent
Wire	7 percent
plug and cord	11 percent
pin/needle/screw/nail	5 percent
paper clip/staple	5 percent
Tweezers/file/tool/knife	3 percent
jewelry/belt buckle	1 percent
body part (finger)	12 percent
open outlet	1 percent
Unknown	6 percent

and released from the Emergency Room with topical treatment. Yet 8.7 percent - that is over 200 children per year - need to be hospitalized. 2 percent of all burns are 3rd degree. These are burns so severe that they result in deeply charred skin and can require a skin graft if the burn is over 1 in. in size. Children are more susceptible to electric burns due to their tender skin and the frequent presence of liquid (saliva, juice, milk). These burns can leave permanent, visible scars.

It is important to note that the NEISS report also includes the following four fatalities:

1991 - 2 year old male, Shawnee, OK, child place key in electrical receptacle
1994 - 23 month old male, Traverse City, MI, child stuck keys in electrical receptacle
1995 - 3 year old female, Great Falls, MT, contact with electric receptacle, cardio respiratory arrest
1998 - 2 year old female, Springfield, MO, stuck unknown object into 110V receptacle

In addition to the 1991-2001 reports, the 2002 National Electronic Injury Surveillance System (NEISS) report is included. The 2002 report states that there were 129 reported incidents, which indicates that there were an estimated total of 3, 277 incidents in 2002 alone. The 2002 data covers all electrical outlet and receptacle incidents occurring in dwellings. The 2002 data contains more detailed information than the NEISS reports for previous years and may be used to provide a better understanding of the reported incidents.

A study conducted by Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP) reported similar data. For example: almost 80 percent of the Canadian incidents occurred in the home (compared with 71 percent in the US). 40 percent were 3-6 years of age (compared with 50 percent in the US). A recent presentation of the CHIRPP data concludes that "legislated standards for the manufacture and use of child safe outlets along with education for parents and children" was called for. I have included CHIRPP raw data for electrical injuries to children ages 9 or less for 1996 - 2003.

Preventative Measures:

Parents, teachers, baby-sitters, grandparents and other caregivers are usually well aware of the dangers related to electricity and to receptacles in particular. Children are often taught to stay away form electric appliances and devices. Public health organizations such as hospitals, maternity wards and the CPSC provide adults with warnings and advice to "child-proof" their homes. There are several preventative measures available.

One option is to provide children with 24/7 permanent surveillance. No research is required to understand that this is an impossible request for the vast majority of parents or caregivers managing multiple children and tasks at any time.

Another commonly used solution is the "plastic receptacle cap". This small cap usually has 2 plastic blades that insert into the receptacle openings and block access to the live electrical contacts. Yet these caps can be poor protective systems. In 1997, the Biokinetics Lab at Temple University in Philadelphia studied 4 different receptacle caps. They tested these caps with 47 children ages 2 to 4 years old. One type of cap was removed by 100 percent of the 2 year-olds in less than 10 seconds. Other caps were removed in less than a minute by most other children.

Since that test, UL has provided this industry with strict product guidelines, but this does not deal with existing older caps, and some caps still remain un-listed. Also caps can only provide protection when they are inserted. When they have been removed to plug in an appliance there is no longer any protection. When a child pulls out a lamp cord there in no longer any protection. Receptacle caps provide protection only when they are in place. Unfortunately, this can only be ensured by constant vigilance to be certain that the cap has not been removed.

There are also receptacle cover plates available in the market that are intended to provide increased protection for children. However, there is no standardized test program to evaluate these plates for tamper resistance and they are typically not UL listed as they can unintentionally introduce a hazard by restricting the full insertion of a plug. These "child proof" plates must also be considered a temporary solution, as it is common practice for homeowners to swap out cover plates for more decorative models from the huge selection at the local hardware store.

Some may believe AFCIs and GFCIs are effective in preventing incidents such as those described above. First, AFCIs are not intended to protect against such incidents. They are intended to prevent arcing-initiated fires, not burns to the finger. While GFCIs can provide some level of protection, they are only required on a limited number of circuits and only protect against some of the circumstances associated with such incidents.

Listed tamper-resistant receptacles provide the most effective means of preventing children from inserting foreign objects into receptacles. Tamper-resistant receptacles have the advantage of being passive protective devices. Once the tamper-resistant receptacle is installed, a plug may be inserted and withdrawn for normal everyday operation, and the tamper resistant feature of the receptacle remains unaffected. The tamper-resistant receptacle continuously provides protection without any user intervention. Decorative cover plates can be installed without affecting the protection. Tamper-resistant receptacles have been used in hospitals for many years. Section 517.18(C) of the National Electrical Code (NEC) recognizes the hazard of children inserting foreign objects into a receptacle and requires tamper resistance in Pediatric Locations. UL has established rigorous testing and evaluation requirements in UL 498 for

tamper-resistant receptacles to ensure that an object inserted into one of the plug blade openings cannot come into contact with a live part in the receptacle. These requirements take into consideration the capabilities of small children, resulting in a receptacle. These requirements take into consideration the capabilities of small children, resulting in a receptacle that is effectively tamper-resistant to a child. Tamper-resistant receptacles are not necessarily tamper-proof for adults attempting to defeat the tamper-resistant feature. For over 20 years, these products have been used in the pediatric area of hospitals with no report of injuries.

In order to ensure the elderly and individuals with disabilities would not encounter excessive force to insert a plug into a tamper-resistant receptacle, NEMA wiring device manufacturers conducted tests to compare the insertion forces required to insert a plug into a standard receptacle and into a tamper-resistant receptacle. A NEMA 5-15P, 15 amp, 125 volt plug was used. The typical insertion forces observed could be characterized as approximately 1 -1.5 lbf is required to overcome the initial resistance of the tamper-resistant mechanism. This is followed by a drop in force as the plug blades have opened the tamper-resistant mechanism and are passing through. As insertion continues, at the point where the blades reach and become engaged with the receptacle contacts the force increases. This is where the maximum force is observed. The typical insertion force varied from 10 -20 lb, depending on the design of the receptacle. There was no appreciable difference in insertion force between tamper-resistant receptacles and receptacles without the tamper-resistant mechanism. The overriding forces required to engage the receptacle contacts are far greater than the force exerted by the tamper-resistant mechanism.

Consideration has been given to the fact that some homes do not have small children, or that a dwelling owner should be given the choice of whether or not to include tamper-resistant receptacles. While a home may not have small children at a particular point in time, houses are sold, and kids visit grandparents and neighbors. Controlling where children are and are not isn't possible, but providing a safer environment for them is...for about $50.00 per house.

Tamper-resistant receptacles are permanently installed...and forgotten, while providing the best child safety available.

Tamper-resistant receptacles may not have prevented all the incidents in the NEISS reports but they undoubtedly would have provided a significant reduction in the injuries to children. Since most of the incidents occurred in homes, adopting an NEC requirement for tamper-resistant receptacles in dwelling units where children are likely to come into contact with receptacles will substantially reduce the type of child injuries described in the NEISS reports.

Note: Supporting material is available for review at NFPA Headquarters.

Cost:

NEMA estimates that the cost difference to fit a new home with tamper-resistant receptacles in lieu of standard receptacles in about $50.00. This estimate includes required GFCI receptacles and outdoor receptacles.

Committee Meeting Action: Reject

Committee Statement: The MHCC notes that such provisions are currently governed in the 2008 edition of NFPA 70, National Electrical Code. The MHCC does not want to necessarily cherry pick provisions from Codes and Standards that have not been adopted in whole or in part if they already require a specific provision.

Number Eligible to Vote: 20

Ballot Results: Affirmative: 19 Negative: 1

Explanation of Negative:

JEWELL: The failure to update the entire electrical code reference standards to contemporary standards is not sufficient justification to fail to address a specific safety issue that has been brought before the committee. I vote to adopt this proposal.

Comment on Affirmative:

KING: In regards to Log #72 I am voting Affirm with the following comment. Had the presenter of this proposal been at the meeting in Tulsa, or provided cost figures at the time along with an explanation of the operation of the device i may have voted to approve. I have had a change to talk to the presenter of this proposal since the meeting and better understand the proposal along with the comments that were provided with the ballot. However, I believe that we should not be piece-mealing changes tot eh National Electrical Code. We could have used this time to consider the entire adoption of an updated version to a referenced standard.

3280HUD-19 Log #74 Final Action: Accept
(3280.203(a)(1)(vi))

Submitter: David A. Tompos, NTA, Inc.
Recommendation: Revise text to read as follows:
5/16-in. or thicker gypsum board with decorative wallpaper or vinyl; and
Substantiation: The proposed changes to 3280.203(a)(1)(vi) will eliminate confusion and the need for the department to clarify the intent of this section. This proposal will eliminate unnecessary testing costs for manufacturers and suppliers. Based on the included test report and NTA Inc's experience with fire testing, decorative vinyl covering will not significantly affect the flame spread of gypsum.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Accept

3280HUD- Log #75 Final Action: Accept
(3280.715(a)(4))

Submitter: Michael Lubliner, Washington State University
Recommendation: New text to replace MHCSS: 3280.715(a)(4) Air tightness of Supply Duct Systems
A supply duct system shall be considered substantially air tight when:
1) Total duct leakage is less than or equal to 5 percent of the floor area, when tested at a differential positive or negative pressure of 1/10th in. water (25 Pa).
Or
2) Other approved standards engineering practice test method that results in comparable duct leakage rates.
Testing shall be conducted after all factory supply ducts are installed. Supply duct testing shall occur at a frequency determined in the quality assurance plan. Frequency shall be no less than one per 50 floors or one floor per five full days of production.

Substantiation: This proposal:
1. improve the existing MHCSS duct leakage testing which: a) is rarely conducted and does not specify a minimum QA testing frequency, b) results greater ductwork leakage at the current 80 percent ratio requirement, and c) does not allow flexibility for alternative test approaches that are shown to be equivalent.
2. is consistent with EPA Energy Star, USDOE Building America Program and MFG typical practices.
3. testing of duct systems and use of duct mastic for air sealing and adequate mechanical fastening will generally result in less than 5 percent total leakage. This in turn will improve energy efficiency, durability and environmental air-quality with respect to moisture control related issues.
4. defines a test and provides flexibility to allow a DAPIA/manufacturer to propose alternative equivalent testing. This is important since Fleetwood, ASHRAE and ASTM are in the process of developing alternative procedures that can be shown to be equivalent, while providing additional QA benefits.
5. frequency of testing is generally defined by mfg QA, and specifies a minimum testing frequency based on QA experience of those conducting duct leakage in-plant testing for Energy Star labeling, and federal residential energy tax credits qualification.
6. The test is flexible enough that it can be conducted in floors prior to the HVAC box installation or after the home sections are connected.
Committee Meeting Action: Accept
Number Eligible to Vote: 20
Ballot Results: Affirmative: 17 Negative: 2 Abstain: 1
Explanation of Negative:
GORMAN: Defer until matter with DOE is resolved.
KING: In regards to Log #75 I am voting Negative with the following comment. I believe the proposal should be rejected for the following reason. In the comments of substantiation, item #3 the submitter notes that the use of duct mastic for air sealing and adequate mechanical fastening will generally result in less than 5 percent total leakage. It is my belief that with adequate quality control of the use of mastic and mechanical fastening the result being looked for with the increased testing can be achieved without the increase in testing rates of one floor every five full days of production. At the present time of production this would most likely require significant increase in inspections for small manufacturers and as a result this would increase the cost of the homes due to delays in production for testing on line. The same can be achieved with a good quality control inspection in the use of the mastic and fasteners.

Explanation of Abstention:
SANTANA: I abstain from this issue because the proposal was verbally passed before I became a member of the MHCC and I did not take part in the discussion.
Comment on Affirmative:
TOMPOS: I agree with the change; however the minimum frequency should be stated as a percentage of floors produced. It is my opinion that requiring at least one floor per five full days of production will created a disadvantage for facilities with low production.

3280HUD- Log #76 Final Action: Accept in Principle
(3280.4 and 328.210)

Submitter: Lois Starkey, Manufactured Housing Institute
Recommendation: 24 CFR Part 3280
Manufactured Home Construction Standards
Fire Sprinkler Systems

Add to Part 3280.4 the following reference.
NFPA 13D, Standards for the Installation of Sprinkler Systems in One and Two-Family Dwellings and Manufactured Homes, 2010 edition.

Add to Part 3280.2 the following definitions.
Multipurpose fire sprinkler system: A system that supplies domestic water to both plumbing fixtures and fire sprinklers.

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

Add to Part 3280 new subpart 210 as follows:

ξ3280.210 Fire Sprinkler Requirements.

(a) *Preemption.* When a manufacturer elects to install a fire sprinkler system or a state or local authority having jurisdiction requires that a fire sprinkler system be installed for all detached single-family dwellings, this section establishes the requirements for the installation of a fire sprinkler system in a manufactured home.

(b) *General.* The design of the fire-sprinkler system itself shall be in accordance with NFPA 13D or this section (3280 210), which shall be considered equivalent to the design method used in NFPA 13D. This section applies to both stand-alone and multipurpose sprinkler systems that do not include the use of antifreeze. A back-flow preventer shall not be required to separate a stand-alone sprinkler system from the water distribution system.

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

1. Attics and normally unoccupied concealed spaces that do not contain fuel burning appliances. In attics and normally unoccupied concealed spaces containing fuel burning equipment, a sprinkler system shall be installed above the equipment; however, sprinklers shall not be required in the remainder of the space.
2. Linen closets, clothes closets and pantries not exceeding 24 square feet in area, with the smallest dimension not greater than 3 feet and having wall and ceiling surfaces of gypsum board.
3. Bathrooms not more than 55 square feet in area.
4. Garages, carports, exterior porches, unheated entry areas, such as mud rooms, that are adjacent to an exterior door, and other similar areas.

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

(e) *Temperature rating and separation from heat sources.* (1) Except as provided for in ξ3280.210(e)(1), sprinkler systems shall have a temperature rating of no less than 135°F (57°C) and not more than 170°F (77°C). Sprinklers shall be separated from heat sources as required by the sprinkler manufacturer's installation instructions.

(1) Intermediate temperature sprinklers. Sprinklers shall have an intermediate temperature rating not less than 175°F (79°C) and not more than 225°F (107°C) when installed in attics; concealed spaces located directly beneath a roof; directly under skylights where the sprinkler is exposed to direct sunlight; and within the distance to a heat source as specified in Table P2904.2.2 of IRC 2009.

(f) *Freezing areas.* Piping shall be protected from freezing as required by Part 24 CFR Section 3280.603 (b)(4). Where sprinklers are required in areas subject to freezing, dry-side-wall or dry-pendent sprinklers extending from nonfreezing

area into a freezing area, shall be installed.

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

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

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

(j) *Sprinkler piping support.* Sprinkler piping shall be supported in accordance with ξ3280.608. Sprinkler piping shall comply with all requirements for cold-water distribution piping. For multipurpose piping systems, the sprinkler piping shall connect to and be part of the cold-water distribution piping system. Nonmetallic pipe and tubing, such as CPVC and PEX, shall be listed for use in residential fire sprinkler systems. Nonmetallic pipe and tubing systems shall be protected from exposure to the living space by a layer of not less than 3/8 thick gypsum wallboard, 1/2 inch thick plywood, or other material having a 15 minute fire rating. Pipe protection shall not be required where exposed piping is permitted by the pipe listing and in areas that do not require protection with sprinklers as specified in ξ3280.210(c).

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

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

(m) *Minimum flow.* The minimum required flow for each sprinkler shall be determined by using the sprinkler manufacturer's published data for the specific sprinkler model based on the area of coverage, ceiling configuration, temperature rating and any other conditions specified by the sprinkler manufacturer.

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

1. The design flow rate for a room having only one sprinkler shall be the flow rate required for that sprinkler, as determined 3280.210(m).
2. The design flow rate for a room having two or more sprinklers shall be determined by identifying the sprinkler in that room with the highest required flow rate, based on 3280.210(m), and multiplying that flow rate by two.
3. Where the sprinkler manufacturer's instructions specify different criteria for ceiling configurations that are not smooth, flat and horizontal, the required flow rate for the room shall comply with the sprinkler manufacturer's instructions.
4. The design flow rate for the sprinkler system shall be the flow required by the room with the largest flow rate, based on 1, 2, and 3 above.
5. For the purposes of this section, it shall be permissible to reduce the design flow rate for a room by subdividing the space into two or more rooms, where each room is evaluated separately with respect to the required design flow rate. Walls and a ceiling shall bound each room. Openings in walls shall have a lintel not less than 8 inches in depth and each lintel shall form a solid barrier between the ceiling and the top of the opening.

(o) *Pipe sizing and minimum required supply pressure.* (1) The piping to sprinklers shall be sized for the flow required by 3280.210(n). The flow required to supply the plumbing fixtures shall not be required to be added to the sprinkler design flow. The minimum pipe size from the water supply inlet to any sprinkler shall be 3/4/inch nominal. Threaded adapter fittings at the point where sprinklers are attached to the piping shall be a minimum of 1/2 inch nominal.

(2) Piping shall be sized by determining the available pressure to offset friction loss in piping and identifying a piping material, diameter and length in accordance with the following:

Minimum Supply Pressure Required. Equation 210o shall be used to determine the required supply pressure at the fire sprinkler inlet.

$P_{sup}=P_T + PL_E + P_{sp}$ (Equation 210o)

Where:
P_{sup}= Pressure required at the fire sprinkler system supply inlet. [Note: This is the pressure which is entered on the Fire Sprinkler System Certificate under "Minimum Water Supply Required."]

PT = Pressure loss in the fire sprinkler system piping.

PL_E = Pressure loss form elevation change. (Note: Normally 4.4 psi for single story houses and 8.7 psi for two story houses).

P_{sp} = Maximum pressure required by a sprinkler.

(3) Determination for P_{sup} shall be in accordance with the following procedure:

(i) Step 1. Determine P_T. For the specific design in question determine the distance (developed length) from the fire sprinkler system supply inlet to the most remote sprinkler. Refer to Tables P2904.6.2(4) through P2904.6.2(9) of the International Residential Code 2009 edition and select the correct table for the fire sprinkler system pipe material and pipe size used. Using the system design flow rate form P2904.4.2 find the "Allowable length of pipe" column which is closest to, but not less than, the developed length for the design in question. The "Allowable Pressure" in the column heading is P_T. [Note: Interpolation between "Allowable length of pipe" column which is closest to, but not less than, the developed length for the design in question. The "Allowable Pressure" in the column heading is P_T. [Note: Interpolation between "Allowable length of pipe" (developed length) and "Available Pressure" (P_T) is permitted. Example using Table P2904.6.2(4): Sprinkler Flow Rate - 16 gpm, developed length = 70 feet, Available Pressure (P_T) = 17.5 psi]

(ii) Step 2. Determine PL_E. Refer to Table P2904.6.2(3) of the International Residential Code 2009 edition. The elevation used in applying the table shall be the difference between the highest sprinkler and the fire sprinkler system supply inlet. Interpolation is permitted. [Note: if the highest sprinkler is lower than the fire sprinkler system supply inlet then subtract this value in equation 210o instead of adding it.]

(iii) Step 3. Determine P_{SP}. Determine the maximum pressure required by any individual sprinkler based on the flow rate for each sprinkler as set forth in 3280.210(m). The required pressure is provided in the data provided by the sprinkler manufacturer for the specific model based on the selected flow rate.

(p) Testing. The fire sprinkler system piping shall be subject to the same test as the water distribution system in 3280.612(a). For Multipurpose Fire Sprinkler Systems it shall be permitted to test the fire sprinkler system piping simultaneously with the domestic water distribution system.

(q) Fire Sprinkler System Certificate. The manufacturer must permanently affix a Fire System Certificate adjacent to the data plate. The manufacturer must specify on the Certificate, the minimum required pressure in pounds per square inch (psi) and flow rate in gallons per minute (gpm) for the water supply system. The Certificate is to include all the statements and required information arranged in substantially the same layout as shown in the following example.

INSERT FIGURE HERE
Fire Sprinkler System Certificate
3280_L76_R.docx

(r) Sign or valve tag. A sign or valve tag shall be installed at the fire system supply inlet stating the following:

Warning, the water supply system supplies fire sprinklers that require specific flows and pressures to fight a fire. Devices that restrict the flow or decrease the pressure or automatically shut off the water to the fire sprinkler system, such as water filtration systems, water softeners and automatic shutoff valves, shall not be added to this system without first contacting the home manufacturer or a fire protection specialist. Please do not remove this sign.

(s) Component instructions. If the manufacturer of a fire sprinkler system component used in a system provides written instructions and procedures for the operation,maintenance, periodic testing, and/or repair of the component, a copy of the instructions and procedures shall be left in each home for the end user.

(t) Manufacturer's installation instructions for fire sprinkler systems. Manufacturer's installation instructions must provide the following:

1. Specific instructions for the inspection and testing of the fire sprinkler system during the installation of the home. Testing requirements are to be consistent with ξ3280.612(a) of this chapter.

2. The following statement:

If this manufactured home contains a fire sprinkler system the installer of the home shall verify that the water supply at the site meets the minimum conditions described on the Fire Sprinkler System Certificate in the home (located next to the data plate). The installer shall also complete the name, address and date on the Certificate.

Substantiation: The Manufactured Home Construction and Safety Standards (MHCSS) do not address fire safety and prevention through the use of fire sprinklers. HUD has taken the position that it cannot preempt state and local jurisdictions from requiring the installation of fire sprinkler systems in new manufactured homes. An increasing number of state and local jurisdictions have established ordinances requiring fire sprinklers in new single family dwellings including manufactured homes, and/or are adopting the 2009 International residential Code which includes fire sprinkler system requirements.

This proposal, therefore, adds a new subpart to Section 3280 providing for a preemptive fire sprinkler system when a manufacturer elects to install a fire sprinkler system or a state or local authority having jurisdiction require that a fire sprinkler system be installed for new manufactured homes.

The standard gives manufacturers the option of utilizing fire sprinkler systems designed in accordance with NFPA 13D or in accordance with a prescriptive method outlined in the new section 3280.210. This prescriptive method is based on the 2009 IRC code and specifically references the tables used in the IRC 2009 edition to determine pipe sizing and water pressure. One advantage of this method, as opposed to the NFPA 13D method, is that the actual design process is much simpler and can easily be done without the use of a complicated computer program. The proposal is also modeled closely from elements of the fire sprinkler standards for manufactured homes in the California code, Title 25, article 2.5, sections 4300-4318.

The proposed standard utilizes a design process that considers the production and distribution methods of factory built housing where the ultimate site location of the home is unknown. The proposal provides for the calculation of the minimum required water pressure and flow rate at the inlet to the home needed for the fire sprinkler system to operate properly, and then requires the information to be included on a certificate placed in the home. The NFPA 13D method uses a design approach whereby the water pressure in the street, pressure losses in the water mete, and the piping between the street and the home inlet must be known. This approach does not work for our industry. As noted, the proposal requires that the manufacturer permanently affix a Fire System Certificate adjacent to the data plate specifying the minimum required pressure in pounds per square inch (psi) and flow rate in gallons per minute (gpm) for the water supply system (Section 3280.210(q)).

The proposed standard also requires a valve tag to be placed on the inlet of the fire sprinkler system [210(r)]; a short statement to be added to the manufacturer's installation instruction [210(t)] and a copy of any fire system component written instructions to be shipped with the home [210(s)].

Under a new section 3285.603(g) the proposal would make the home installer responsible to do the following as part of the installation process:

1. Pressure test the fire sprinkler system piping system following instructions provided by the manufacturer,
2. Verify that the adequacy of the supply to the system against the minimum requirements call out on the Certificate provided by the manufacturer, and
3. Provide his company name, address and date of home installation on the Certificate.

Cost Impact:

The estimated cost impact for installing a sprinkler system in a new manufactured home on a "where required" basis should be minimal. In fact this proposal should reduce costs from current requirements to meet state and local fire sprinkler standards because the MHI proposal calls for design approval and installation in-house, using the procedures outlined in the Manufactured Home Procedural and Enforcement Regulations, (24 CFR Part 3282).

This proposal will minimize cost variances caused by local ordinances that go beyond the NFPA 13D minimum requirements for fire sprinkler systems.

According to a 2008 study prepared by the Fire Protection Research Foundation, *Home Fire Sprinkler Cost Assessment,* the cost of installing sprinkler systems to the site builder averaged $1.61/per sprinklered square foot. Sprinklered square feet is the total area of spaces with sprinklers. This cost includes design, installation, and other costs such as permits, and water meter fees, to the extent they apply.

Since manufactured homebuilders will be able to utilize in-plant design and inspection procedures, it is estimated that the cost for this proposal would be between $.50 and $.75 per square sprinklered foot.

This is not original material; its reference/source is as follows:
IRC 2009

Committee Meeting Action: Accept in Principle

Committee Statement: The MHCC has considered an enormous amount of information concerning this subject. In addition to the discussions that have taken place on this topic since 2009, the MHCC held a special public comment session on October 18, 2011 to solicit input from all perspectives. After careful debate, the MHCC has determined that it is best to add language into Parts 3280 and 3285 to address fire sprinkler systems for those circumstances when the manufacturer installs a system. There is no mandate for systems to be installed, but for the first time, the federal standards for manufactured housing will provide the proper guidance when a system is installed.

3280HUD-21 Log #78 Final Action: Accept
(3280.304(a))

Submitter: Michael Wade, Cavalier Home Builders, Inc.

Recommendation: Add text to read as follows:

3280.304 Materials.

(a) Dimension and board lumber shall not exceed 19 percent moisture content at time of installation.

(1) Treated lumber used for porch decking and porch joists which are fully exposed to ambient air may have a moisture content exceeding 19 percent.

Substantiation: Per the current language, it is not permissible to use standard treated lumber. KDAT (kiln dried after treatment) must be used to obtain moisture content below 19 percent. Many porch designs exist where the joists do not extend into the enclosed portion of the floor cavity, and thus are exposed to ambient air at all times. Taking this into consideration, it seems logical that the moisture content of exposed treated lumber at the time of construction should not be limited.

Cost/Benefit: Standard treated lumber will recognize a savings in comparison to KDAT lumber.

Committee Meeting Action: Accept

3280HUD- Log #CP1 Final Action: Accept
(3280 Various (New))

Submitter: HUD Manufactured Housing Consensus Committee,
Recommendation: Update 24 CFR Part 3280 to reflect a reference to NFPA 70, 2002 Edition. Revise the noted sections to reflect use of the latest edciton of NFPA 70.

607(c)(6)(iv)

(iv) *Electrical*. Refer to the National Electrical Code, NFPA 70–2002, Part VII of Article 680.

801(a)

(a) Subpart I of this standard and Part I of Article 550 of the National Electrical Code (NFPA No. 70–2002) cover the electrical conductors and equipment installed within or on manufactured homes and the conductors that connect manufactured homes to a supply of electricity.

801(b)

(b) In addition to the requirements of this standard and Article 550 of the National Electrical Code (NFPA No. 70–2002) the applicable portions of other Articles of the National Electrical Code shall be followed covering electrical installations in manufactured homes. Wherever the requirements of this standard differ from the National Electrical Code, this standard shall apply.

803(k)(1)

(k) Where the calculated load exceeds 50 amperes or where a permanent feeder is used, the supply shall be by means of:

(1) One mast weatherhead installation installed in accordance with Article 230 of the National Electrical Code NFPA No. 70–2002 containing four continuous insulated, color-coded, feeder conductors, one of which shall be an equipment grounding conductor; or

803(k)(3)

(3) Service equipment installed on the manufactured home in accordance with Article 230 of the National Electrical Code NFPA No. 70–2002; and

803(k)(3)(ii)

(ii) Exterior equipment, or the enclosure in which it is installed shall be weatherproof and installed in accordance with Article 312.2 of the National Electrical Code NFPA No. 70–2002. Conductors shall be suitable for use in wet locations;

803(k)(3)(iii)

(iii) The neutral conductor shall be connected to the system grounding conductor on the supply side of the main disconnect in accordance with Articles 250.24, 250.26, 250.24(C), and 250.28 of NFPA No. 70–2002.

804(a)

(a) The branch-circuit equipment shall be permitted to be combined with the disconnecting means as a single assembly. Such a combination shall be permitted to be designated as a distribution panelboard. If a fused distribution panelboard is used, the maximum fuse size of the mains shall be plainly marked with lettering at least 1⁄4-inch high and visible when fuses are changed. See Article 110.22 of the National Electrical Code (NFPA No. 70–2002) concerning identification of each disconnecting means and each service, feeder, or branch circuit at the point where it originated and the type marking needed.

804(k)

(k) When a home is provided with installed service equipment, a single disconnecting means for disconnecting the branch circuit conductors from the service entrance conductors shall be provided in accordance with Part IV of Article 230 of the National Electrical Code, NFPA No. 70–2002. The disconnecting means shall be listed for use as service equipment. The disconnecting means may be combined with the disconnect required by §3280.804(c). The disconnecting means shall be rated not more than the ampere supply or service capacity indicated on the tag required by paragraph (l) of this section.

805(a)(3)(iv)

(iv) The rating of range branch circuit shall be based on the range demand as specified or ranges in § 3280.811, Item B(5) of Method 1. For
central air conditioning, see Article 440 of the National Electrical Code (NFPA No. 70–2002).

806(a)(2)

(a) All receptacle outlets shall be:

(1) Of grounding type;

(2) Installed according to Article 210.7 of the National Electrical Code (NFPA No. 70–2002).

807(c)

(c) If a lighting fixture is provided over a bathtub or in a shower stall, it shall be of the enclosed and gasketed type, listed for wet locations. See also Article 410.4(D) of the National Electrical Code NFPA No. 70–2002.

808(a)

(a) Except as specifically limited in this part, the wiring methods and materials specified in the National Electrical Code (NFPA No. 70–2002) shall be used in manufactured homes.

808(m)

(m) Outlet boxes of dimensions less than those required in Table 314.16(A) of the National Electrical Code (NFPA No. 70–2002) shall be permitted provided the box has been tested and approved for the purpose.

808(q)

(q) A substantial brace for securing a box, fitting or cabinet shall be as described in Article 314.23(B) of the National Electrical Code (NFPA 70–2002) or the brace, including the fastening mechanism to attach the brace to the home structure, shall withstand a force of 50 lbs. applied to the brace at the intended point(s) of attachment for the box in a direction perpendicular to the surface in which the box is installed.

811(b)

(b) The following is an optional method of calculation for lighting and appliance loads for manufactured homes served by single 3-wire 120/240 volt set of feeder conductors with an ampacity of 100 or greater. The total load for determining the feeder ampacity may be computed in accordance with the following table instead of the method previously specified. Feeder conductors whose demand load is determined by this optional calculation shall be permitted to have the neutral load determined by Article 220.22 of the National Electrical Code (NFPA No. 70–2002). The loads identified in the table as ''other load'' and as ''Remainder of other load'' shall include the following:

Substantiation: The use of the latest edition of NFPA 70 will permit the Federal Manufactured Housing Construction and Safety Standards to reflect the latest technologies available for electrical safety and installation.

Committee Meeting Action: Accept
Number Eligible to Vote: 19
Ballot Results: Affirmative: 19

3280HUD- (3280.210) Log #CP2 Final Action: Accept

Submitter: HUD Manufactured Housing Consensus Committee,
Recommendation: Add a new Section: 3280.210 to address the installation of carbon monoxide devices as follows:

3280.210 Carbon Monoxide Detection Requirements.
(1) A carbon monoxide alarm(s) or detector(s) must be installed in accordance with *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*, NFPA 720-2009 edition and in accordance with the installation instructions that accompany the unit. Each carbon monoxide alarm(s) or detector(s) installed must be listed and conform to the requirements of *Single and Multiple Station Carbon Monoxide Alarms*, ANSI/UL 2034-2005 edition.

(2) For each home designed to be placed over a basement, the manufacturer must provide a carbon monoxide alarm or detector for the basement and must install at the factory an electrical junction box for the installation of this carbon monoxide alarm or detector and for its interconnection to other carbon monoxide alarms or detectors required by this section. The instructions for installers and information for homeowners required in paragraph (3) of this section must clearly indicate that a carbon monoxide alarm or detector should be installed and is to be located on the basement ceiling near the stairway.

(3) Testing and maintenance. (1) Each required carbon monoxide alarm or detector installed at the factory must be operationally tested, after conducting the dielectric test specified in §3280.810(a), in accordance with the alarm manufacturer's instructions. A carbon monoxide alarm or detector that does not function as designed during the test and is not fixed so that it functions properly in the next retest must be replaced. Any replacement carbon monoxide alarm or detector must be successfully tested in accordance with this paragraph
Substantiation:
The MHCC appointed a Task Group in 2008 to look at how best to integrate a carbon monoxide (CO) alarm or detector provision into Part 3280. While many states are passing, or have passed state laws mandating CO alarms in residential settings, preemption would mean that manufactured homes would largely be exempt from such laws. The new section will allow manufactured homes to parallel requirements for site built, modular and multifamily housing.

It was noted that the International Residential Code, IRC, currently requires CO detectors in all residences with fuel burning appliances. The MHCC discussed the efficacy of limiting CO detector requirements to homes with fuel-burning appliances and to allow all-electric homes to be exempt from the requirement. Data, studies and reports provided to the MHCC from the CPSC and NFPA indicated that the number of CO poisoning deaths and injuries warranted the use of CO detectors in all residential occupancies regardless of heating sources.

The CPSC provided testimony that there were 166 CO related deaths between 2002 and 2004, and that 49% of these deaths (approximately 81) were attributed to heating systems and that 33% were caused by the use of gas-fired generators. Not only is CO poisoning possible in all electric homes it has, indeed, occurred in some of these homes when the power goes out and generators are often employed to provide backup power. It was agreed that all manufactured housing units should be protected by CO detectors.

The MHCC elected to make reference to the NFPA standard, NFPA 720, the UL product standard, UL 2034 and the manufacturers installation instructions to insure that the devices are properly installed and situated in the home. A requirement to make sure that a provision was available for homes that are located over a basement foundation has also been included.

Discussions relative to the overall cost to the industry on an annual basis were debated but it was eventually decided that whatever figure was derived based on industry projections, it would be somewhat artificial as there was no way to accurately predict how many homes and of what types and styles would be produced. The decision to base projected cost on a hypothetical basis of one CO detector per home was unanimously agreed to even though it was understood that some homes would require more than one unit.

The cost figure arrived at was a maximum of $150 per unit per home. This figure was based on a cost of $25.00 to $35.00 per detector including miscellaneous materials (i.e. wires, circuit breaker, junction boxes) and an additional

$40.00 in labor for installation for a net cost to the manufacturer of approximately $75.00 per unit. That figure was then doubled to account for anticipated manufacturer overhead & profit markup to the consumer.

The MHCC will at some future point also have to make a change to PART 3285—MODEL MANUFACTURED HOME INSTALLATION STANDARDS to make sure there is correlation for homes with basements.

Committee Meeting Action: Accept

Number Eligible to Vote: 19
Ballot Results: Affirmative: 16 Negative: 3
Explanation of Negative:
GORMAN: See the Explanation of Negative for ZIEMAN-CP2.
WALTER: This item needs more work by the subcommittee. The proposal to require a CO detector in a future attic or basement is not well-phrased. The item should be rejected by the MHCC and returned to the subcommittee.
ZIEMAN: I am in favor of a CO detector requirement but it needs to be done right. The proposal needs to be brought back to the committee for revision. What happened the first time? The committee was rushed as the HUD's suggested language was not given to the committee until the morning of July 27, 2009, the last day of our face-to-face meeting, which in retrospect did not provide adequate time for proper consideration of all the issues.
The issues:
What was adopted on 7-27-09 differs substantially from the IRC and is substantially more restrictive. See IRC (2009) R315.1 below. The major differences include the following:
1. The IRC only requires CODs in homes with fuel fired appliances and/or that have attached garages. The task force and full committee agreed, for various reason, that CODs should be required in all MH units. I understand the arguments and though this is more restrictive than the IRC, I agree it is the right thing to do.
2. The IRC spells out the location requirements, (which do not include basements). The proposal adopted on 7-27-09 requires the user to go to a 64-page reference standard to find location requirements. This is not justified. The location criteria can be easily included in the MHCSS, without the need to go to a different document, just as it is for smoke detector location criteria [see 3280.208(b)]. Including the location criteria in the MHCSS makes it a more user friendly document.
3. The proposal adopted by the committee requires that provision for CODs be made on basement ready homes. Obviously no HUD code home is built with a basement. The basement over which a MH unit might be installed may or may not have a bedroom(s). Even if a bedroom is present in the basement the location of the electrical outlet intended for the future installation of a COD would most likely not be in the proper place (that is outside but in the immediate vicinity of the bedroom). For these reason I believe we should not attempt to address basements in our proposal but rather leave this up to the LAHJ to regulate, so they are typically responsible for all on-site work, including basement.
Based on all of the above my suggested starting point for discussion for a new COD requirement is as follows:
3280.211 Carbon Monoxide Detection Requirements:

Carbon monoxide alarm(s) or detector(s) must be installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s) and located on walls ceiling or other locations as specified in accordance with the manufacturers installation instructions which accompany the unit(s). Each carbon monoxide alarm or detector installed must be listed and labeled as conforming to ANSI/UL 2034-2005 Single and Multiple Station Carbon Monoxide Alarms. Provisions for possible field installation of carbon monoxide alarm(s) or detector(s) on the underside of Manufactured Homes are not required.
Comment on Affirmative:
JEWELL: I agree with the subcommittee's proposed language and I encourage HUD to promptly move forward on this important recommendation.
LUBLINER: Please make sure that all members of the MHCC are aware of the testing conducted as NIST on HUD-code homes and CO issues related to the use of gas generators. HUD & manufacturers and retailers should consider advising consumers of these issues in their homeowner's manuals. The NIST information is available at: http://www.newswise.com/articles/for-safer-emergencies-give-your-power-generator-some-space?page=1&search[status]=3&search[sort]=date+desc&search[has_multimedia]=1
SHEAHAN: I agree with the value of placing CO detectors in all manufactured homes but considering the relatively short lifespan of such detectors, I feel additional consideration needs to be given regarding incorporation of an adequate alarm to indicate failure of the unit, as well as other means of motivating a homeowner to replace a defective unit in a timely way. Apparently, these units are just as effective on a vertical surface and when placed not far above the floor. Considering this, a detector that could be plugged into an electrical wall outlet would lessen manufacturers' costs as well

as the costs of replacement for consumers. To make it more permanent, proper installation could require removal of the outlet faceplate as well as using the faceplate screw to secure the unit to the outlet. If "off the shelf" detectors could be used, replacement costs would be greatly reduced and the likelihood of replacement/compliance by homeowners would be increased.

WEINERT: 1. Based on the fact that the ANSI/UL standard for CO detectors is entitled "Single and Multiple Station Carbon Monoxide Alarms", I believe that MHCSS section 3280.210 should be edited to say "A carbon monoxide ~~detector(s) or~~ alarm(s)..." for brevity, clarity throughout the document. Since the referenced installation standard addresses both CO detection and alarm, the actual MHCSS standard can just say "alarm".

2. The referenced ANSI/UL standard in 3280.210 says 2034-2005 edition. Edit to say 2004-2005 edition.

3280HUD- Log #CP3 Final Action: Reject
(3280.806)

Submitter: HUD Manufactured Housing Consensus Committee,

Recommendation: Add new Section 3280.806(e):

(e) Receptacle Outlets. Receptacle outlets must not be installed in or within reach (30 inches) of a shower or bathtub space. Countertop or cabinet spaces containing receptacle outlets which may be used for connection to an entertainment center, television, computer or other appliance must be located at least 30 inches in any horizontal direction from the tub surround or shower enclosure.

Substantiation: The HUD Program Office has been made aware of certain designs in bathrooms where mini entertainment centers have been setup in bathrooms in very close proximity to bathtub enclosures. The office is concerned with the electrocution hazard that these setups entail and is suggesting these changes to minimize that chance.

Committee Meeting Action: Reject

Committee Statement: The committee believes the concern raised in the proposal is best handled by an interpretive bulletin from HUD rather than by a change to the MHCSS. This is not necessarily a concern but addressing it as an interpretive bulletin can also discuss related problems such as running extension cords to power entertainment systems located near bath tubs, hott tubs and shower enclosures.

Number Eligible to Vote: 20

Ballot Results: Affirmative: 20