

MHCC SYSTEMS SUBCOMMITTEE
April 16, 2012 Conference Call
DRAFT MINUTES

Systems Subcommittee Roll Call	
Members	Attendance
Mark Mazz	Y
Mike Lubliner	Y
Terry Nelson	Y
Theresa Desfosses	N
Leo Poggione	Y
Manuel Santana	Y
Mark Luttich – Chair	Y
Tim King	Y
William Freeborne	Y
Adam Rust	Y
AO	
Joe Nebbia	
HUD	
James Everett	DFO
Rick Mendlen	
Guests	
Jim Demitrus, MHCC member	
Phil Sapone, Newport Ventures	
Barry Kirby, GAO	
Julianne Gorse, GAO	
Don Stevens, Panasonic	

Highlights and Action Items

- Motion Systems 1 passed 7-2-0 to recommend that the MHCC accept Logs 25, 30, and 59 in principle (see modifications below)

Meeting Minutes

The meeting called to order at 11:05 a.m. eastern time. It was established that James Everett would be acting as the DFO in this meeting.

There was some discussion about the materials for the meeting. The Chair apologized that the presentation was only sent to the Subcommittee the day of the conference call. It was clarified that this presentation was from the task group and that it was a comparison between 3280 ventilation requirements and ASHRAE 62.2. There was further discussion of whether Mr. Lubliner’s comments to the presentation were distributed to the group. The AO distributed an initial set of comments on March 19 along with the meeting scheduling poll. Many Subcommittee members indicated that they had not seen the comments. It was further clarified that Mr. Lubliner sent additional comments. These were distributed after the Subcommittee conference call, but summarized by Mr. Lubliner during the call.

A Subcommittee member in the user category expressed objection to taking only parts of the ASHRAE 62.2 standard instead of adopting the entire standard. He provided the history of the ventilation standards in 3280 which were originally developed before ASHRAE 62.2 was available for reference.

A Subcommittee member in the general interest category suggested that the group go through the comparison presentation before discussing what action to take.

There was agreement from other members stating that Subcommittee members should ask questions about the presentation as they have them.

The group discussed the comparison presentation which described the main differences between 3280 and ASHRAE 62.2 as follows (list taken directly from presentation):

<ol style="list-style-type: none"> 1. WHV flow rate of .035cfm per sq.ft. or hourly equivalent 2. No min. duration of venting required 3. Min of 50cfm, max of 90cfm 4. Ventilation may be by mechanical system or passive/mechanical combo 5. positive pressure not allowed in zone 3 6. Negative pressure not allowed in zone 1 7. A WHV label must be attached to the control 8. Instructions for operating the system must be provided 9. unobstructed ventilation must be provided for each habitable room – 4% of room area 10. Kitchens shall be provided with mechanical exhaust ventilation of 100 cfm min. 11. Bathrooms shall be provided with mechanical exhaust ventilation of 50 cfm min. 	<ol style="list-style-type: none"> 1. WHV flow rate depends on # of bedrooms but generally lower than 3280 2. Venting required to be continuous or equivalent 3. No minimum or maximum unless in hot and humid or very cold climates 4. Ventilation must be by mechanical system 5. Supply pressure limited to 7.5 cfm / 100 sq.ft. in very cold climates 6. Exhaust pressure limited to 7.5 cfm / 100 sq.ft. in hot and humid climate 7. Controls shall be labeled as to their function 8. Information on the ventilation system such as operating instructions shall be provided 9. Habitable spaces shall have ventilation openings of 4% of the floor area but not less than 5 sq.ft. 10. Kitchens shall have intermittent local exhaust of 100 cfm min. 11. Bathrooms shall have intermittent local exhaust of 50 cfm min.
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It was clarified that in ASHRAE 62.2 a whole house fan, whether intermittent or continuous, has to be 1 one or less. Exhaust only fans have to be 3 ones or less.

There was a comment from a Subcommittee member in the user category that testing has been done on flow rates for fans installed in manufactured homes that shows they often don't meet the 50 CFM required. This research, published in the ASHRAE Journal, was also presented by representatives of ASHRAE to the MHCC. Testing would help with Q/A on the fans.

There was a question from a Subcommittee member in the producer category about where and when the testing under ASHRAE 62.2 takes place. It was clarified that the standard does not specify, but that it would be most practical in the plant.

It was noted that ASHRAE 62.2 restrictions of exhaust ventilation in hot/humid climates and supply ventilation in very cold climates are no longer applicable as they have been changed through addenda to the standard.

There was a question from a Subcommittee member in the general category about who determines intermittent ventilation rates. It was clarified that the manufacturer or installer would need to determine. A Subcommittee member in the producer category stated that in practice, manufacturers would design for continuous operation without being able to guarantee consumer behavior.

There was a concern expressed by a Subcommittee member in the general category that enforcement officials wouldn't have info on how long fans were supposed to be running. There was a comment from a Subcommittee member in the user category that under 3280 there is no also no info provided and that no guidance is given on how to run the fan.

There was a clarification that ASHRAE 62.2 does not require flow measurement for spot ventilation – only if it's also the whole house ventilation. An override on the fan is required because people have to be able to control their own home.

There was discussion that provisions on atmospherically vented combustion equipment or solid fuel appliances were not applicable because they would not be allowed in Manufactured Homes.

The group discussed potential conflicts between 3280 and ASHRAE 62.2 (the following list was taken directly from the presentation)

- ASHRAE 62.2 makes reference to standards and climate zones not found in the 3280s
- 62.2 references elements not covered by 3280 such as multifamily buildings and garages.
- 62.2 requires sound limits on exhaust fans. This can be a cost issue
- 62.2 requires testing of flow rates of supply and exhaust air for WHV – frequency not specified
- 62.2 restricts ventilation strategies to climate zones that don't match the zones in 3280
- 62.2 requires air flow measurements for local exhaust – frequency not specified
 - It was clarified in discussion that this item was only for whole house fans
- 62.2 limits the exhaust flow when atmospherically vented combustion appliances or solid fuel burning appliances are installed
 - It was clarified in discussion that this item would not apply to Manufactured Housing
- Total leakage of supply ducts is limited to 6% of fan flow when located outside the pressure envelope. § 6.5.2 implies testing but this may include the crossover duct which is installed on-site

Reasons for adopting ASHRAE 62.2 were discussed (list taken from Mr. Lubliner's emailed comments that he summarized on the conference call with additional comments from the call):

- No Alternative Construction (AC) letters required on larger homes as now required
- Allow for more flexible approaches to design using exhaust, supply and balanced system climate appropriate designs
- Better defines "balanced" in accordance with accepted engineering practices with specific limits provided
- It is an ANSI Internationally utilized "constant maintenance" standard, allowing for better turn around on interpretations for experts, rather than relying on HUD staff

- Adoption by HUD is consistent with the National Technology Transfer Act (NTTA), which advises HUD to consider existing recognized stds. instead of “going it alone”
- Would get technical updates and interpretations faster than waiting 10 years for HUD
- Is required in many programs of; HUD, EPA, DOE and private sector “green homes” programs such as LEED, Healthy House, ENERGY STAR, Builders Challenge etc..
- Consistent with direction of modular homes & site built homes
- Testing of flow rates on an in-plant periodic basis will improve flow rates and ensure compliance
- Improving operation frequency and ensuring flow rate compliance, reduces occupants health issues associated with fine particulates, molds, VOC, CO etc.
- Allows for improved 10' separation to avoid re-entrainment of combustion flue gas back into home (GAO issue)
- Less potential litigation from using international recognized standards and improved QA on meeting whole house and spot exhaust minimum installed flow rates
- Better furnace based ventilation control will ensure improved operation
- Lower sound levels for exhaust fans will ensure improved operation
- More explicit requirements for labeling and better occupant education will improve operation
- Quieter whole house fans will have a longer term reliability than \$10 exhaust fans – (my quiet fan has run continuously since 1998)
- Eliminates need for \$10 fan hallway, ducting, roof penetration, electrical etc. so the cost extra \$50- \$70 of the quieter fan are offset
- No conflict with more detailed map since DAPIA can address in design stage regardless of what 62.2 climate maps.
- No conflict since HUD is authority having jurisdiction
- We have no information HUD or industry (even though I requested) disputing the NIST research findings that identified low measured flow rates and low operational use. .
- This proposal was made to MHCC in 2009, since then over 100,000 homes were built without 62.2 compliance

The Chair asked for questions from Subcommittee members.

A Subcommittee member in the general interest category stated that he did not see any hot button issues in the differences between the standards.

There was a question from a Subcommittee member in the producer category about whether 3280 is inadequate. He further stated that the IRC, IBC, IMC don't require mechanical ventilation. The IRC only requires 4% openable area. There was clarification that the 2012 IRC and IECC both require whole house mechanical ventilation using the same rates as ASHRAE 62.2 air tightness is 5ACH50 or tighter. In milder climates homes are required to be 5ACH50 or tighter and 3ACH 50 or tighter in more severe climates.

There was a comment from a Subcommittee member in the producer category that if 3280 ventilation is inadequate the proper equations could be added to the standard to fix this problem rather than adopting ASHRAE 62.2. He stated that 3280 could design for continuous operation. He further stated that in practice, the consumer will turn on fan when they feel like it and it won't be used continuously. He argued that IAQ is subjective and based on consumer comfort and sensitivity. Another Subcommittee member in the producer category expressed agreement.

A Subcommittee member in the user category stated that he has asked the MHCC if anyone has ever measured flow rates of fans in Manufactured Homes. He reminded the group of a NIST presentation on this subject. He stated that flow rates in current manufactured homes are out of compliance and adoption of 62.2 would require periodic measurements of fans, leading to the correct selection of fans. He also stated that consumer education would be a benefit.

There was a question from a Subcommittee member in the producer category on who would do the educating. There was further discussion of current practice, which may consist of a label on the switch recommending that the fan be left on, and pointing any interested buyer to the fan manufacturers manual. There was a question on whether retailers could spend 15 minutes discussing ventilation with a customer.

There was a comment from a Subcommittee member in the user category that there are two issues. One is that the homeowner can do what they want. Another is the goal of evacuating pollutants that exist because of off-gassing and a more sealed environment. It was suggested that just because the homeowner might not use it does not mean the manufacturer shouldn't give them the best system possible.

A Subcommittee member in the general category expressed support for adoption of ASHRAE 62.2

A Subcommittee member in the producer category stated that there is not opposition to improving 3280 if it is deficient, but would rather address the deficiencies than completely starting over with a new standard.

There was a suggestion that the most important points could be getting manufacturer instructions and testing the fan flow rates.

There was another comment that by the time this proposal works its way through HUD there will be further standards of ASHRAE 62.2 that would then have to be evaluated. There was a response that because the HUD process is inefficient, it's better to rely on the technical expertise of the 62.2 committee. Every building code goes through this process of updating reference standards and relies on the expertise of that outside standard. There was disagreement expressed with this point because it removes the decision from the MHCC which has to consider other issues such as function, practicality and cost, rather than the absolute best technical approach.

There was clarification that the Subcommittee could take action today.

Motion Systems1: Mr. Lubliner made a motion that the Subcommittee recommend that the MHCC accept in principle logs 25, 30, and 59 by adopting 62.2 with three provisions

- 1. Adjust climate zones to HUD zones, as needed**
- 2. Jurisdiction with authority is HUD**
- 3. Specify that performance of system is tested in the plant at a frequency the manufacturer feels is appropriate.**

Mr. Freeborne Seconded.

Discussion of the motion:

There was a comment from a Subcommittee member in the general category that the industry should avoid lengthy disclosures and retailer education of the buyer on ventilation would be

unrealistic, regardless of the standard adopted. There was further clarification that ASHRAE 62.2 does not require training of anyone. There was a comment that consumer interest in the education would vary.

There was a comment from a Subcommittee member in the producer category that site built housing does not test fans.

A Subcommittee member in the user category stated that he had done flow rate testing on behalf of the State of Washington and that the fans didn't meet the required flow rates.

It was clarified that SAAs in New York and Nebraska have not done this testing, nor do they have the equipment.

There was a comment that Maryland now requires testing.

The Chair stated that the IPIA would require the manufacturer to install the correct fans, as well as the size and length of ducts. The SAA would decide if it's installed properly. He reminded the Subcommittee that they need to provide what they think is best but he questioned whether testing in factories would make a difference.

It was clarified that the action on the motion was accepted in principle on the log items being discussed. The log items were read to determine that this action was correct.

There was a comment that some of these log items came to the MHCC in 2007.

Vote	Vote passes 7-2
Text of Motion Systems1: Mr. Lubliner made a motion that the Subcommittee recommend that the MHCC accept in principle logs 25, 30, and 59 by adopting 62.2 with three provisions	
<ul style="list-style-type: none"> 4. Adjust climate zones to HUD zones, as needed 5. Jurisdiction with authority is HUD 6. Specify that performance of system is tested in the plant at a frequency the manufacturer feels is appropriate. 	
Mr. Freeborne Seconded.	
Members	Vote
Mark Mazz	Y
Mike Lubliner	Y
Terry Nelson	Y
Theresa Desfosses	Absent
Leo Poggione	N
Manuel Santana	N
Adam Rust	Y
Mark Luttich - Chair	Y
Tim King	Y
William Freeborne	Y

Motion passed 7-2-0. The recommendation will be brought to the full committee. The Chair expressed appreciation to all involved for their work on the issue.

Meeting adjourned at 12:42 p.m. eastern time.