

Minutes
Mechanical Board of Appeals and Examiners
Building Services Conference Room
July 11, 2012, 12 noon

Members Present

Ryan Van Der Bill, Jack Zimmer, Greg Bertsch and Mark Lamb

Members Absent

Mark Weber

Guests Present

Ron Bell, Mark Schempp

Approval of Minutes of Last Meeting

A motion was made by Mr. Zimmer and a second was made by Mr. Lamb to approve the minutes of June 13, 2012. Yeses, 4. Noes, 0.

Unfinished Business

1. The Mr. Denny presented the board with the proposed changes to the 2012 IRC Mechanical and Fuel Gas sections as well as the 2012 IRC ordinance changes.

- **R303.4 Mechanical ventilation.** Where the air infiltration rate of a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure of 0.2 inch wc (50 Pa) in accordance with Section N1102.4.1.2, the dwelling unit shall be provided with whole-house mechanical ventilation in accordance with Section M1507.3.

Mechanical board recommendation: Make no changes to this section, and present to the Home Builders Association.

SECTION M1305
APPLIANCE ACCESS

- **M1305.1 Appliance access for inspection service, repair and replacement.** *Appliances* shall be accessible for inspection, service, repair and replacement without removing permanent construction, other *appliances*, or any other piping or ducts not connected to the *appliance* being inspected, serviced, repaired or replaced. A level working space at least 30 inches deep and 30 inches wide (762 mm by 762 mm) shall be provided in front of the control side to service an *appliance*. Installation of room heaters shall be permitted with at least an 18-inch (457 mm) working space. A platform shall not be required for room heaters.

Mechanical board recommendation: Interpretation change: Require the level working space at least 30 inches deep and 30 inches wide to include all interior and exterior appliances on new construction only. Existing appliances being replaced at the same location will not be required to follow this section.

- **M1411.6 Locking access port caps.** Refrigerant circuit access ports located outdoors shall be fitted with locking-type tamper-resistant caps or shall be otherwise secured to prevent unauthorized access.

Mechanical board recommendation: Make no changes to this section.

SECTION M1507 MECHANICAL VENTILATION

- **M1507.1 General.** Where local exhaust or whole-house mechanical ventilation is provided, the equipment shall be designed in accordance with this section.

M1507.3 Whole-house mechanical ventilation system. Whole-house mechanical ventilation systems shall be designed in accordance with Sections M1507.3.1 through M1507.3.3.

M1507.3.1 System design. The whole-house ventilation system shall consist of one or more supply or exhaust fans, or a combination of such, and associated ducts and controls. Local exhaust or supply fans are permitted to serve as such a system. Outdoor air ducts connected to the return side of an air handler shall be considered to provide supply ventilation.

M1507.3.2 System controls. The whole-house mechanical ventilation system shall be provided with controls that enable manual override.

M1507.3.3 Mechanical ventilation rate. The wholehouse mechanical ventilation system shall provide outdoor air at a continuous rate of not less than that determined in accordance with Table M1507.3.3(1).

Exception: The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3 (1) is multiplied by the factor determined in accordance with Table M1507.3.3 (2).

M1507.4 Local exhaust rates. *Local exhaust* systems shall be designed to have the capacity to exhaust the minimum air flow rate determined in accordance with Table M1507.4.

TABLE M1507.4 MINIMUM REQUIRED LOCAL EXHAUST RATES FOR ONE- AND TWO-FAMILY DWELLINGS

AREA TO BE EXHAUSTED	EXHAUST RATES
Kitchens	100 cfm intermittent or 25 cfm continuous
Bathrooms-Toilet Rooms	Mechanical exhaust capacity of 50 cfm intermittent or 20 cfm continuous

For SI: 1 cubic foot per minute = 0.0004719 m³/s.

TABLE M1507.3.3(1)
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 - 1	2 - 3	4 - 5	6 - 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 - 3,000	45	60	75	90	105
3,001 - 4,500	60	75	90	105	120
4,501 - 6,000	75	90	105	120	135
6,001 - 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m², 1 cubic foot per minute = 0.0004719 m³/s.

TABLE M1507.3.3(2)
INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS^{a, b}

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor ^a	4	3	2	1.5	1.3	1.0

a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.
b. Extrapolation beyond the table is prohibited.

Mechanical board recommendation: Make no changes to this section, and present to the Home Builders Association.

SECTION M1601

➤ DUCT CONSTRUCTION

4. Minimum thickness of metal duct material shall be as listed in Table M1601.1.1 (2). Galvanized steel shall conform to ASTM A 653. Metallic ducts shall be fabricated in accordance with SMACNA Duct Construction Standards Metal and Flexible.

Mechanical board recommendation: Amend S1.8 to allow for G-40 coated galvanized steel of lockforming grade to be allowed in residential.

Amend S3.4 The use of a saddle or a direct connection of a branch into a larger duct is acceptable. ~~Where they are used, the diameter of the branch shall not exceed two-thirds of the diameter of main and protrusions into the main, are not allowed.~~ Direct connection of a branch into a main shall include mechanical attachment sufficient to maintain the integrity of the assembly. All saddle fittings shall be sealed at all pressures per section M1601.4.1 Joints, seams and connections.

2009 IRC Ordinance changes for 2012

- **M1305.1.4.1 Ground clearance.** *Equipment and appliances* supported from the ground shall be level and firmly supported on a concrete slab or other *approved* material extending not less than 1 1/2 inches (76 mm) above the adjoining ground. Such support shall be in accordance with the manufacturer's installation instructions. *Appliances* suspended from the floor shall have a clearance of not less than 6 inches (152 mm) from the ground.

Add: Equipment and appliances including the service areas shall be provided with a minimum 80-inch (2.032 m) headroom clearance.

Mechanical board recommendation: Include the minimum 80-inch headroom requirement in the IRC.

- **M1502.4.4.1 Specified length.** The maximum length of the exhaust duct shall be 35 feet (10,668 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table M1502.4.4.1.

~~M1502.4.4.1 Specified length. The maximum length of the exhaust duct shall be 35 feet (10 668 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table M1502.4.4.1. The maximum length of the exhaust duct does not include the transition duct.~~

Mechanical board recommendation: Remove the 35-foot 2009 Ordinance from the 2012 Ordinance, as the 2012 IRC has the maximum exhaust at 35-feet.

- **G2407.6 (304.6) Outdoor combustion air.** Outdoor *combustion* air shall be provided through opening(s) to the outdoors in accordance with Section G2407.6.1 or G2407.6.2. The minimum dimension of air openings shall be not less than 3 inches (76 mm).

~~Remove-Combustion air intake openings located on the exterior of a building shall have the lowest side of such openings located not less than 12-inches (305 mm) vertically from adjoining grade level.~~

~~**Remove: Combustion air intake openings shall be located a minimum of 3 feet from a gas meter, or other hazards for existing dwellings.**~~ **Add: Combustion air opening shall be installed per section R303.5.1 Intake openings.**

Mechanical board recommendation for section R303.5.1: Require the 10' on new construction only, existing houses and equipment replacements would decrease the requirement to 3'.

Mechanical board recommendation: Change the ordinance as stated above.

➤ **107.2 Required inspections and testing.** It shall be the duty of the licensed mechanical contractor or his designated mechanic doing the work authorized by a permit to notify the mechanical inspector that such work is ready for inspection. The building official may require that every request for inspection be filed at least one working day before such inspection is desired. The code official, upon notification from the permit holder or the permit holder's agent, shall make the following inspections and other such inspections as necessary, and shall either release that portion of the construction or shall notify the permit holder or the permit holder's agent of violations that must be corrected. The holder of the permit shall be responsible for the scheduling of such inspections.

1. Underground inspection shall be made after trenches or ditches are excavated and bedded, piping installed, and before backfill is put in place. When excavated soil contains rocks, broken concrete, frozen chunks and other rubble that would damage or break the piping or cause corrosive action, clean backfill shall be on the job site.

2. Rough-in inspection shall be made after the roof, framing, fireblocking, and bracing are in place and all ducting and other components to be concealed are complete, and prior to the installation of wall or ceiling membranes.

3. Final inspection shall be made upon completion of the mechanical system.

Exception: Ground-source heat pump loop systems tested in accordance with Section 1208.1.1 shall be permitted to be backfilled prior to inspection.

The requirements of this section shall not be considered to prohibit the operation of any heating equipment or appliances installed to replace existing heating equipment or appliances serving an occupied portion of a structure provided that a request for inspection of such heating equipment or appliances has been filed with the department not more than 48 hours after such replacement work is

completed, and before any portion of such equipment or appliances is concealed by any permanent portion of the structure.

Change the exception to: The requirements of this section shall not be considered to prohibit the operation of any heating ~~equipment or~~ appliances installed to replace existing heating ~~equipment or~~ appliances serving an occupied portion of a structure provided that a request for inspection of such heating ~~equipment or~~ appliances has been filed with the department not more than 48 hours after such replacement work is **placed into operation or substantially** completed, and before any portion of such equipment or appliances is concealed by any permanent portion of the structure.

Mechanical board recommendation: Add “placed into operation or substantially”, remove equipment and not include cooling in the requirement of calling within 48 hours.

The following are new proposed ordinances that are not currently in the 2009 ordinance

- **R109.2 Final inspection.** Final inspection shall be made after the permitted work is complete and prior to occupancy. **This is only a question dealing with final inspections pertaining to fireplace inspections, when the mechanical has been completed.**

Mechanical board recommendation: Require a final inspection on all fireplaces installed. The final inspection shall be after the startup procedures have been complied and all finishes are in place.

- **G2411.1.1 (310.1.1) CSST.** Corrugated stainless steel tubing (CSST) gas piping systems shall be bonded to the electrical service grounding electrode system. **The bonding jumper shall connect to a metallic pipe or fitting between the *point of delivery* and the first downstream CSST fitting.** The bonding jumper shall be not smaller than 6 AWG copper wire or equivalent. Gas piping systems that contain one or more segments of CSST shall be bonded in accordance with this section. **The is a proposal to require an existing CSST gas piping to be bonded, anytime the gas piping has been modified or a new appliance is connected to the**

existing gas piping. The bonding requirement would be per the manufactures installation instructions and not section G2411.1.1.

Mechanical board recommendation: Require the mechanical contractor to bond existing CSST that has not been previously bonded. This will only apply when the mechanical contractor makes any changes to the existing gas piping system.

- **Section G2421.1 Pressure regulators.** This is a proposal to requiring marking any gas piping system that exceeds ½” PSIG to be labeled the same as in the Uniform Plumbing Code.
- **Section G2415.3 Prohibited location.** The piping located on the exterior extending from the gas meter to the inside of the structure shall be a metallic pipe in compliance with Section G2414.4. The entrance into the structure shall be provided with the appropriate transition flange where an alternate gas piping material is utilized on the inside of the structure.

Mechanical board recommendation: Make the above stated changes to be consistent with the 2009 UPC.

Adjournment

A motion was made by Mr. Lamb and a second was made by Mr. Zimmel to adjourn the meeting at 1:30 p.m. Yeses, 3. Noes, 0.

***An audio tape of the meeting will be available at the City of Sioux Falls.**

Mike Denny
Secretary