

## Minutes

### Mechanical Board of Appeals and Examiners

Building Services Conference Room, April 8, 2015, 12 noon

#### Members Present

Ryan Van Der Bill, Mark Lamb, Mark Weber, Mark Schmidtbauer, and Roger Nikolas

#### Members Absent

#### Guests Present

#### Approval of Minutes of Last Meeting

A motion was made by Mr. Weber and a second was made by Mr. Schmidtbauer to approve the minutes of March 11, 2015. Yeas, 5. Nays, 0.

#### Unfinished Business

1. Mr. Klarenbeek presented the board with the proposed changes to the 2015 International Mechanical and Fuel Gas Codes. The changes are as follows:

**IMC 510.4 Independent system.** Hazardous exhaust systems shall be independent of other types of exhaust systems.

**IMC 510.5 Incompatible materials and common shafts.** Incompatible materials, as defined in the *International Fire Code*, shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area.

**Exception:** The provisions of this section shall not apply to laboratory exhaust systems where all of the following conditions apply:

1. All of the hazardous exhaust ductwork and other laboratory exhaust within both the occupied space and the shafts are under negative pressure while in operation.
2. The hazardous exhaust ductwork manifolded together within the occupied space must originate within the same fire area.
3. Hazardous exhaust ductwork originating in different fire areas and manifolded together in a common shaft shall meet the provisions of Section 717.5.3, Exception 1, Item 1.1 of the *International Building Code*.
4. Each control branch has a flow regulating device.
5. Perchloric acid hoods and connected exhaust shall be prohibited from manifolding.
6. Radioisotope hoods are equipped with filtration, carbon beds or both where required by the *registered design professional*.
7. Biological safety cabinets are filtered.
8. Each hazardous exhaust duct system shall be served by redundant exhaust fans that comply with either of the following:
  - 8.1. The fans shall operate simultaneously in parallel and each fan shall be individually capable of providing the required exhaust rate.
  - 8.2. Each of the redundant fans is controlled so as to operate when the other fan has failed or is shut down for servicing.

**IMC 510.7.1.1 Shaft penetrations.** Hazardous exhaust ducts that penetrate fire-resistance-rated shafts shall comply with Section 714.3.1 or 714.3.1.2 of the *International Building Code*.

**Mechanical Board recommendation: Make no changes to these sections.**

**IMC 514.2 Prohibited applications.** Energy recovery ventilation systems shall not be used in the following systems:

1. Hazardous exhaust systems covered in Section 510.
2. Dust, stock and refuse systems that convey explosive or flammable vapors, fumes or dust.
3. Smoke control systems covered in Section 513.
4. Commercial kitchen exhaust systems serving Type I or Type II hoods.
5. Clothes dryer exhaust systems covered in Section 504.

**Exception:** The application of ERV equipment that recovers sensible heat only utilizing coil-type heat exchangers shall not be limited by this section.

**Mechanical Board recommendation: Make no changes to this section.**

**IMC 601.5/ IRC 1602 Return air openings.** Return air openings for heating, ventilation and air-conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. Return air shall not be taken from a hazardous or insanitary location or a refrigeration room as defined in this code.
3. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
4. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturer's installation instructions, ACCA Manual D or the design of the registered design professional.
5. Return air taken from one dwelling unit shall not be discharged into another dwelling unit.
6. Taking return air from a crawl space shall not be accomplished through a direct connection to the return side of a forced air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
7. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

**Exceptions:**

1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen and are located not less than 10 feet (3048 mm) from the cooking appliances.
2. Dedicated forced air systems serving only the garage shall not be prohibited from obtaining return air from the garage.

**Mechanical Board recommendation: Make no changes to these sections.**

**IMC 602.1 General.** Supply, return, exhaust, relief and ventilation air plenums shall be limited to uninhabited crawl spaces, areas above a ceiling or below the floor, attic spaces and mechanical equipment rooms. Plenums shall be limited to one fire area. Air systems shall be ducted from the boundary of the fire area served directly to the air-handling equipment. Fuel-fired appliances shall not be installed within a plenum.

**IMC 602.2 Construction.** Plenum enclosure construction materials that are exposed to the airflow shall comply with the requirements of Section 703.5 of the *International Building Code* or such materials shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

**Mechanical Board recommendation: Make no changes to these sections.**

**IMC 602.2.1.5 Discrete plumbing and mechanical products in plenums.** Where discrete plumbing and mechanical products and appurtenances are located in a plenum and have exposed combustible material, they shall be listed and labeled for such use in accordance with UL 2043.

**Mechanical Board recommendation: Make no changes to these sections.**

**TABLE 603.4  
DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESS FOR SINGLE DWELLING UNITS<sup>a</sup>**

ROUND DUCT DIAMETER (inches)	STATIC PRESSURE			
	<sup>1</sup> / <sub>2</sub> -inch water gage		1-inch water gage	
	Thickness (inches)		Thickness (inches)	
	Galvanized	Aluminum	Galvanized	Aluminum
< 12	0.013	0.018	0.013	0.018
12 to 14	0.013	0.018	0.016	0.023
15 to 17	0.016	0.023	0.019	0.027
18	0.016	0.023	0.024	0.034
19 to 20	0.019	0.027	0.024	0.034
RECTANGULAR DUCT DIMENSION (inches)	STATIC PRESSURE			
	<sup>1</sup> / <sub>2</sub> -inch water gage		1-inch water gage	
	Thickness (inches)		Thickness (inches)	
	Galvanized	Aluminum	Galvanized	Aluminum
≤ 8	0.013	0.018	0.013	0.018
9 to 10	0.013	0.018	0.016	0.023
11 to 12	0.016	0.023	0.019	0.027
13 to 16	0.019	0.027	0.019	0.027
17 to 18	0.019	0.027	0.024	0.034
19 to 20	0.024	0.034	0.024	0.034

For SI: 1 inch = 25.4 mm, 1-inch water gage = 249 Pa.

a. Ductwork that exceeds 20 inches by dimension or exceeds a pressure of 1-inch water gage shall be constructed in accordance with SMACNA *HVAC Duct Construction Standards—Metal and Flexible*.

**Mechanical Board recommendation: Make no changes to this section and eliminate local amendment that modifies this table. 2015 IMC reverts back to again match up with duct construction for the IRC.**

**IMC 603.9/IRC 1601.4.1 Joints, seams and connections.** All longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA *HVAC Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. All joints, longitudinal and transverse seams and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be listed and labeled in accordance with UL 181A and shall be marked “181 A-P” for pressure-sensitive tape, “181 A-M” for mastic or “181 A-H” for heat-sensitive tape. Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked “181 B-FX” for pressure-sensitive tape or “181 B-M” for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked “181 B-C.” Closure systems used to seal all ductwork shall be installed in accordance with the manufacturer's instructions.

**Mechanical Board recommendation: Make no changes to this section and keep local amendments regarding which joints are required to be sealed.**

**IMC 607.1.1 Ducts and air transfer openings.** Ducts transitioning horizontally between shafts shall not require a shaft enclosure provided that the duct penetration into each associated shaft is protected with dampers complying with this section

**IMC 802.9/IFGC 502.7.1/IRC 1804.4 and G2426.7.1 Door swing.** Appliance and equipment vent terminals shall be located such that doors cannot swing within 12 inches (305 mm) horizontally of the vent terminals. Doorstops or closers shall not be installed to obtain this clearance.

**Mechanical Board recommendation: Make no changes to this section.**

**IMC 903.4 Gasketed fireplace doors.** A gasketed fireplace door shall not be installed on a factory-built fireplace except where the fireplace system has been specifically tested, listed and labeled for such use in accordance with UL 127.

***Mechanical Board recommendation: Make no changes to this section.***

**IMC 1102.3 Access port protection.** Refrigerant access ports shall be protected in accordance with Section 1101.10 whenever refrigerant is added to or recovered from refrigeration or air-conditioning systems.

***Mechanical Board recommendation: Make no changes to this section.***

**IFGC 304.1 General.** Air for combustion, ventilation and dilution of flue gases for appliances installed in buildings shall be provided by application of one of the methods prescribed in Sections 304.5 through 304.9. Where the requirements of Section 304.5 are not met, outdoor air shall be introduced in accordance with one of the methods prescribed in Sections 304.6 through 304.9. *Direct-vent appliances*, gas appliances of other than natural draft design, vented gas appliances not designated as Category I and appliances equipped with power burners shall be provided with combustion, ventilation and dilution air in accordance with the *appliance* manufacturer's instructions.

***Mechanical Board recommendation: Make no change to this section.***

**IFGC 310.1.1 CSST.** Corrugated stainless steel tubing (CSST) gas *pipng* systems and piping systems containing one or more segments of CSST shall be bonded to the electrical service grounding electrode system or, where provided, the lightning protection grounding electrode system.

**IFGC 310.1.1.1 Point of connection.** The bonding jumper shall connect to a metallic pipe, pipe fitting or CSST fitting.

**IFGC 310.1.1.2 Size and material of jumper.** The bonding jumper shall be not smaller than 6 AWG copper wire or equivalent.

**IFGC 310.1.1.3 Bonding jumper length.** The length of the bonding jumper between the connection to a gas piping system and the connection to a grounding electrode system shall not exceed 75 feet (22 860 mm). Any additional grounding electrodes used shall be bonded to the electrical service grounding electrode system or, where provided, the lightning protection grounding electrode system.

**IFGC 310.1.1.4 Bonding connections.** Bonding connections shall be in accordance with NFPA 70.

**IFGC 310.1.1.5 Connection devices.** Devices used for making the bonding connections shall be listed for the application in accordance with UL 467.

***Mechanical Board recommendation: Make no changes to these sections and eliminate local amendment. Wording in upcoming plumbing code will change to be similar to this.***

**IFGC Chapter 4. Gas piping installations.**

***Mechanical Board approved staff review of IFGC Chapter 4 to ensure consistency with the plumbing code.***

**IFGC 503.8/IRC G2427.8 Venting system termination location.** The location of venting system terminations shall comply with the following (see Appendix C):

5. Vent systems for Category IV appliances that terminate through an outside wall of a building and discharge flue gases perpendicular to the adjacent wall shall be located not less than 10 feet (3048 mm) horizontally from an operable opening in an adjacent building. This requirement shall not apply to vent terminals that are 2 feet (607 mm) or more above or 25 feet (7620 mm) or more below operable openings.

## **Adjournment**

A motion was made by Mr. Weber and a second was made by Mr. Lamb to adjourn the meeting at 2:05 p.m. Yeses, 5. Noes, 0.

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

Gary Klarenbeek

Secretary