

## SAMPLE MATRIX

### 2018 International Residential Code – Mechanical Sections

IRC-Mechanical Code Change No.	IRC-Mechanical Section	Change Summary b/t 2015 IRC-M and 2018 IRC-M	Change Summary b/t 2017 FRC-M and 2018 IRC -M	Staff comments
RM1-15	M1305.1.4.2	<p>Entirely revises M1305.1.4.2 to M1305.1.4.2 “Pit Locations.” The language in the IMC and IFGC is much more complete and concise. This modification completes this section and has all the information necessary for a code compliant installation and makes it consistent with the other codes</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. This proposal is strictly editorial in nature and will not cause an increase in cost.</p>	Same as change between 2015 IRC and 2018 IRC	
RM15-15	M1503.4, M1503.4.1, M1503.4.2 (New)	<p>Modifies Section M1503.4 “Makeup air required.” Also removes Exception. Adds new Section M1503.4.2 “Makeup air dampers.” Per reasoning Back drafting of combustion appliances typically presents the greatest danger associated with depressurizing a space. The proposal introduces a new section to address MUA dampers specifically, moving the text from M1503.4 to M1503.4.2 and introducing one new requirement for gravity or barometric dampers.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction.</p>	This change is not similar to that of the FRC. The FRC expands the scope of this section to provide for list of exceptions as required by statutes.	Overlapping provision to be considered during step 2 of the code change process

Code Change No: **RM1-15**

Original Proposal

Section: M1305.1.4.2

**Proponent:** Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmmann@jeffco.us)

**Delete and substitute as follows:**

~~**M1305.1.4.2 Excavations. Pit locations** Excavations for appliance installations shall extend to a depth of 6 inches (152 mm) below the appliance and 12 inches (305 mm) on all sides, except that the control side shall have a clearance of 30 inches (762 mm).~~

Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil and shall be installed not less than 6 inches (152 mm) above the pit floor. The sides of the pit or excavation shall be held back not less than 12 inches (305 mm) from the appliance. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry. Such concrete or masonry shall extend not less than 4 inches (102 mm) above adjoining grade and shall have sufficient lateral load-bearing capacity to resist collapse. Excavation on the control side of the appliance shall extend horizontally not less than 30 inches (762 mm). The appliance shall be protected from flooding in an approved manner.

**Reason:** The language in the IMC and IFGC is much more complete and concise. This modification completes this section and has all the information necessary for a code compliant installation and makes it consistent with the other codes

**Cost Impact:** Will not increase the cost of construction  
This proposal is strictly editorial in nature and will not cause an increase in cost.

Report of Committee Action Hearings

**Committee Action:**

**Approved as Modified**

**Modify as follows:**

**M1305.1.4.2 Pit locations.** Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil and shall be installed not less than 6-3 inches (152 mm) above the pit floor. The sides of the pit or excavation shall be held back not less than 12 inches (305 mm) from the appliance. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry. Such concrete or masonry shall extend not less than 4 inches (102 mm) above adjoining grade and shall have sufficient lateral load-bearing capacity to resist collapse. Excavation on the control side of the appliance shall extend horizontally not less than 30 inches (762 mm). The appliance shall be protected from flooding in an approved manner.

**Committee Reason:** Approval was based on the proponent's published reason statements. The modification changes an archaic 6 inch dimension to the more commonly required 3 inch dimension.

**Assembly Action:**

**None**

Final Action Results

RM1-15

AM

Code Change No: **RM15-15**

Original Proposal

**Section: M1503.4, M1503.4.1, M1503.4.2 (New)**

**Proponent:** Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport Ventures (mmoore@newportventures.net)

**Revise as follows:**

**M1503.4 Makeup air required.** Exhaust hood systemsWhere one or more gas-, liquid-, or solid-fuel-burning appliance that is neither direct -vent nor uses a mechanical draft venting system is located within a dwelling unit's air barrier, each exhaust systemcapable of exhausting in excess of 400 cubic feet per minute (0.19 m<sup>3</sup>/s) shall be mechanically or naturally passively provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper complying with Section M1503.4.2. Each damper shall

**Exception:** Makeup air is not required for exhaust systems installed for the exclusive purpose of space cooling and intended to be a gravity damperoperated only when windows or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replacedair inlets are open.

**M1503.4.1 Location.** Kitchen exhaust makeup air shall be discharged into the same room in which the exhaust system is located or into rooms or *duct systems* that communicate through one or more permanent openings with the room in which such exhaust system is located. Such permanent openings shall have a net cross-sectional area not less than the required area of the makeup air supply openings.

**Add new text as follows:**

**M1503.4.2 Makeup air dampers** Where makeup air is required by Section M1503.4, makeup air dampers shall comply with this section. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced. Gravity or barometric dampers shall not be used in passive makeup air systems except where the dampers are rated to provide the design makeup airflow at a pressure differential of 0.01 in. w.c. (3 Pa) or less.

**Reason:** Backdrafting of combustion appliances typically presents the greatest danger associated with depressurizing a space. Field tests have confirmed that naturally vented combustion appliances (i.e., those that are not mechanically vented or direct-vent) are the most susceptible to depressurization, and measures should be taken to provide makeup air (MUA) for large exhaust appliances when such appliances are located within the dwelling unit's air barrier. ASHRAE 62.2, the consensus standard for Ventilation and Acceptable Indoor Air Quality in residential dwelling units, does not require MUA when combustion appliances are mechanically vented or are direct-vent. The ASHRAE 62.2 committee recently reviewed the 62.2 section requiring MUA, and the general consensus (no vote taken) was a reaffirmation that the MUA requirement should not apply to mechanically vented or direct-vent combustion appliances, due to lack of data to substantiate their susceptibility to backdrafting.

This proposal would relax the MUA requirement in the IRC by aligning it more closely with ASHRAE 62.2. Similar changes have been made to this section in Florida's and Virginia's adoptions of the IRC.

The proposal introduces a new section to address MUA dampers specifically, moving the text from M1503.4 to M1503.4.2 and introducing one new requirement for gravity or barometric dampers. It makes no sense to design a system to provide MUA if the damper does not open before the combustion appliance starts spilling. So, the new requirement is intended to ensure that when MUA is required, any gravity or barometric damper used to provide MUA shall engage at the pressure differential above which naturally drafted combustion appliances can be expected to backdraft (3 Pa, based on an acceptable 5%-20% failure rate across all

outdoor conditions)'. This proposed requirement only applies to gravity or barometric dampers in "passive" MUA systems, which are those that provide MUA without the assistance of a fan. Gravity or barometric dampers in "active" MUA systems are excluded from this requirement because we assume that the fan will create a sufficient pressure differential to open the damper.

A companion proposal has been submitted to the IMC.

**Bibliography:**

1. Bohac, D., et al. (2002). Ventilation and Depressurization Information for Houses Undergoing Remodeling. Accessed on Dec 5, 2014 at: <http://www.mncee.org/getattachment/eedb1afc-f50e-4833-b450-d52233f58ce0/>.

**Cost Impact:** Will not increase the cost of construction

This proposal is expected to reduce construction costs by reducing the number of scenarios requiring makeup air for kitchen exhaust.

**Report of Committee Action Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM15-15**

**AS**

**M1503.4 Makeup air required.** Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m<sup>3</sup>/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.

**Exception: In a single-family dwelling, make-up air is not required for range hood exhaust systems capable of exhausting:**

**(a) Four hundred cubic feet per minute or less; or**

**(b) More than 400 cubic feet per minute but no more than 800 cubic feet per minute if there are no gravity vent appliances within the conditioned living space of the structure.**